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THE

LINCOLNSHIRE NATURALISTS UNION

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TRANSACTIONS

Edited by
F. T. BAKER, M.A., F.S.A., F.M.A., A.L.A.
and
MARK R. D. SEAWARD, M.Sc., M.I.Biol.

Vol. XVI. No. 2 **1965**

LINCOLN
Keyworth and Fry Ltd., Swanpool Court

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FORMED 1949

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Founded June 12th, 1893

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STATEMENT OF ACCOUNT

from January 1st to December 31st, 1964

INCOME AND EXPENDITURE ACCOUNT

Receipts	£	s	d
To Balance at the Midland Bank, Lincoln 1st January, 1964	134	6	6
„ Interest on £500 Defence Bonds	25	0	0
„ Sale of publications	4	18	0
„ Subscriptions — 1 new life member	21	0	0
„ Ordinary Members	321	12	0
„ Donations	102	5	0
	£609	1	6

Expenses	£	s	d
By Printing *Transactions*, Vol. XV, No. 4	204	12	6
„ Duplicating, packing and posting of notices	67	7	9
„ Subscriptions to Societies:—Council for Nature, B.S.B.I., B.T.O., B.H.S., B.B.S., B.B., C.P.R.E.	14	12	0
„ Lecturers expenses	7	16	6
„ Junior Book Tokens	3	18	0
„ Income Tax on Defence Bonds interest	9	13	9
„ Hire of rooms	7	12	9
„ Administrative expenses	39	1	2
„ Printing of note-paper, cards	14	8	7
„ Donations transferred to Deposit Account at Midland Bank, Lincoln	100	0	0
„ Bank Charges and Cheque Book	1	0	6
„ Cash at Bank December 31st, 1964	138	18	0
	£609	1	6

Audited and found correct, 15th June, 1965.

ROBERT WITHERS.

PLATE 1 "BRASIER'S POND"

PLATE 2 BIRCH SCRUB INVASION

Presidential Address

Delivered at Lincoln, 14th March, 1964

by

FRANK NORRIS, F.C.C.S.

SCOTTON COMMON NATURE RESERVE

It is not my intention to give you a history, or a detailed account of the ecology of Scotton Common. Several members of this Union have been familiar with the Common for many more years than I have been working there. They no doubt remember the days when it covered a large part of north-west Lincolnshire, from Scotton to Gainsborough. From the mid-19th century it had been a mecca for naturalists from a wide area and many field meetings were held there by the Union from 1897 onwards.

In this County we occasionally hear that this or that parcel of land has been acquired by the Lincolnshire Naturalists' Trust and is to be managed as a Nature Reserve. The question which puzzles many people is "What happens from then on?" Is the land just left to the operation of natural processes, or is the Reserve completely changed through the efforts of a few guided or misguided individuals?

A short time ago it was said by some people at an L.N.U. meeting that Nature Reserves should be left in a natural condition. This shows a lack of understanding of the workings of nature, and raises the question: "What is a natural condition?" In this modern world many forces are acting to alter the nature of the habitat, not least of which are the farming interests in the district where drainage works on nearby land can alter very appreciably the water-table of a Reserve. In 1895, many tons of clay were carried to Scotton Common, the land was ploughed and some attempt was made to cultivate it. This attempt was given up in 1900, when it was allowed to revert to heathland. Many large trees were felled during the First World War and for many years birch scrub was cut for use in the steelworks at Scunthorpe. Later the Common was drained and afforested by the Forestry Commission. Can this area then be said to be in a 'natural condition'? I believe the words to be meaningless in this predominantly agricultural County.

In 1950, the small remaining area was selected for designation as a 'Site of Special Interest', and from then on, one of the main aims of the Lincolnshire Naturalists' Trust was to acquire this last remaining piece of the once extensive common. Some difficulty was experienced by virtue of the fact that the land was the property of two different owners. However in 1953 the Trust came to an agreement with one of the owners and, with the help of the Society for the Promotion of Nature Reserves, was able to purchase about thirty acres. The balance of the land held by this particular owner was sold to a chicken farmer,

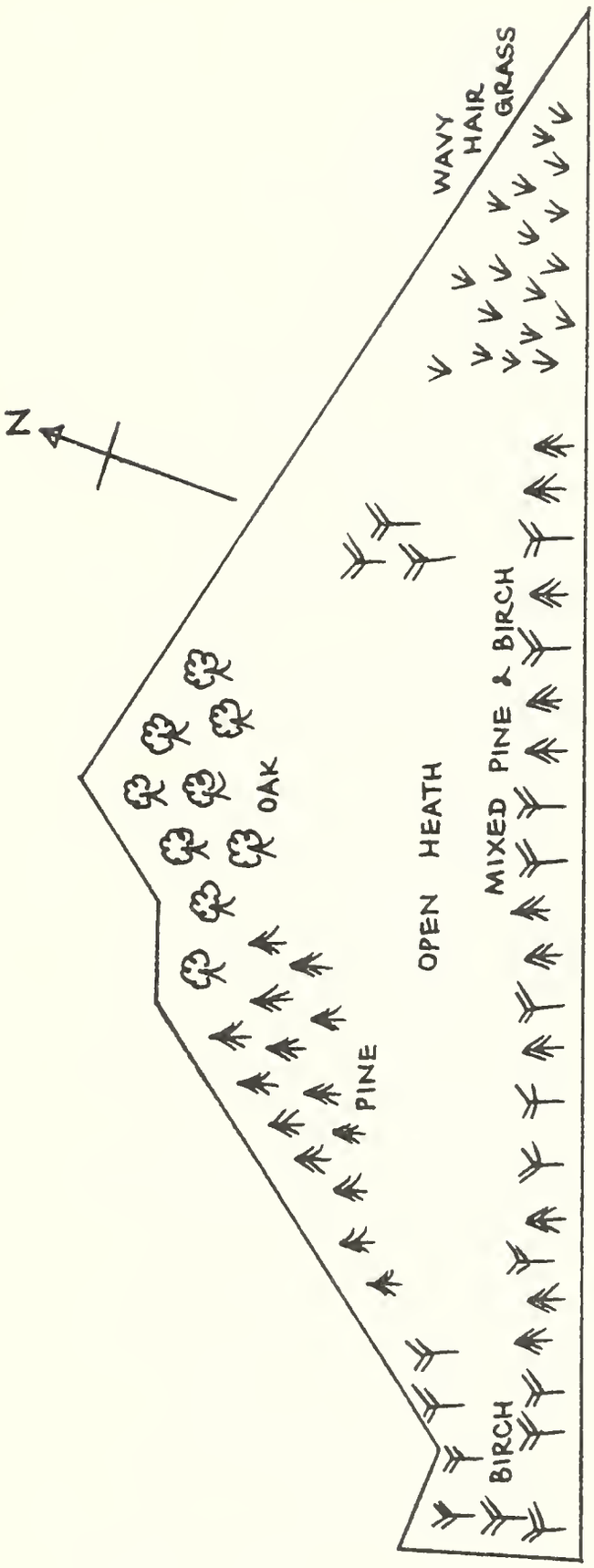

Fig. 1.

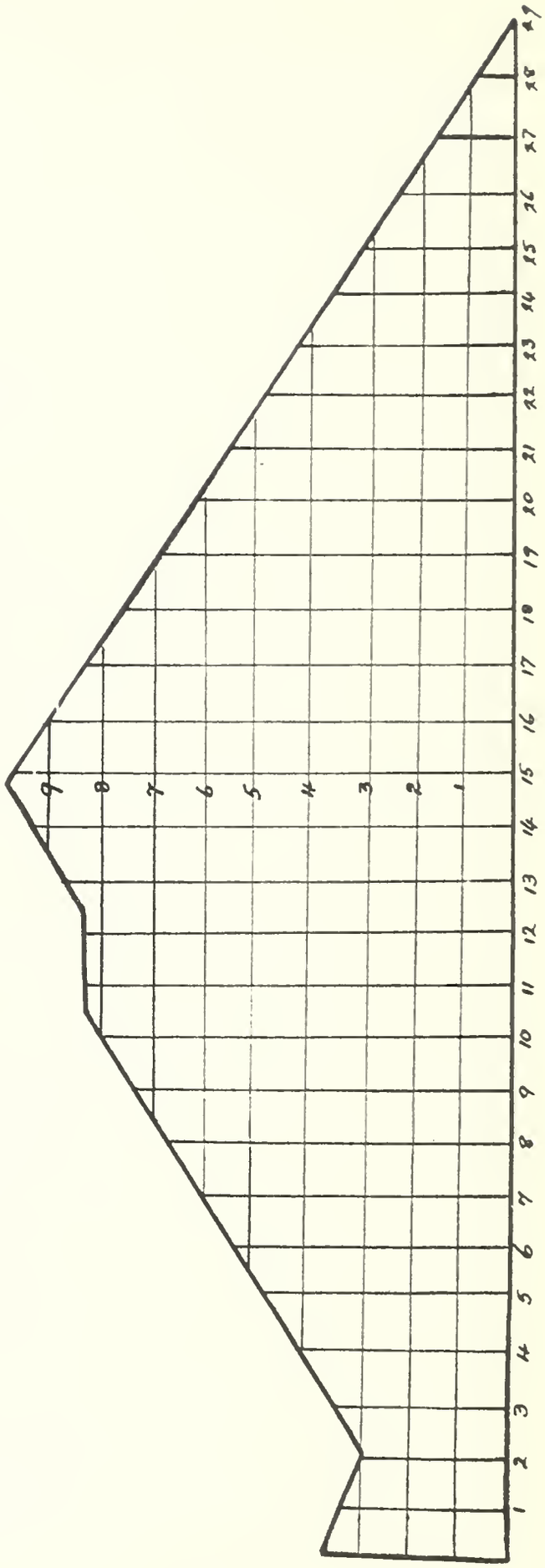

Fig. 2.

who fortunately agreed to sell his share to the Trust in 1955. Meanwhile, in 1954 the second owner had been persuaded to sell, and now the Reserve covers some forty acres. A management committee was formed in 1954 and I was asked to accept the post of Regional Officer and Secretary. We were fortunate in that year to have a visit from Dr. Max Walters, who made out an excellent report which was used as a basis for a future management plan.

It was decided that the first and most important job was to make some attempt at mapping the vegetation. Before this could be started reference points had to be set up, and with this in mind, the reserve was divided up into squares, the corners of each square being marked with numbered posts at intervals of one hundred feet (see Figs. 1 and 2). This posed a number of problems, due to the density of the birch scrub, but was completed in four week-ends. An area of about fifty square feet was cleared to ground level in order that regeneration could be studied and in three years this area was completely covered with ling (*Calluna vulgaris*).

As the water-table in one part of the Reserve was very close to the surface, it was thought desirable that a pond should be dug at this point. Most of the digging was done by Mr. F. Brasier and consequently the pond has since come to be known as "Brasier's Pond".

1956 was a year of great activity. A number of nest-boxes were made and fixed to trees in various parts of the Reserve. For the first year or two these were occupied by Blue and Great Tits, but since then they seem to have been taken over by Tree Sparrows. As the Reserve was being increasingly used by naturalists, it became obvious that some form of field headquarters and shelter was required, so in October 1956 a hut was purchased, erected and furnished.

Meanwhile a great deal of thought had been given to the question of the preservation of those species of plants which had made the acquisition of the land so imperative in the first place; such species as the Bog Asphodel (*Narthecium ossifragum*) Marsh Gentian (*Gentiana pneumonanthe*) and Long-leaved Sundew (*Drosera intermedia*). I am happy to say the management policy has resulted in a great enlargement of the growing area of both the Bog Asphodel and the Marsh Gentian, but regret the same cannot be said of the Sundews which are still decreasing in numbers. The Butterwort (*Pinguicula vulgaris*) is another rare Lincolnshire plant which, in spite of its numbers being augmented by plants from nearby ditches, is only just managing to hold its own.

By 1956 rabbits had begun to recover from the initial ravages of myxomatosis and were doing a certain amount of damage in the area dominated by Wavy Hair Grass (*Deschampsia flexuosa*). Complaints of rabbit damage were also being received from neighbouring farmers, so in co-operation with the County Pests Officer, action was taken

against these mammals. Whilst the rabbit has not been exterminated on the Reserve, its numbers have been kept within acceptable bounds.

During the time all this work was being carried out on the Reserve, the roadside verge was not forgotten; the beautiful little Creeping Cinquefoil (*Potentilla reptans*) is one of the plants to be found there, together with the Marsh Valerian (*Valeriana dioica*). For some time, members of the Union and Trust were puzzled by the presence on the road verge of such lime-loving plants as the Twayblade (*Listera ovata*), until it was realized that limestone had been used as the hardcore of the nearby road. In recent years the road has been widened, and for some time fears were felt for the verge plants which were covered with heaps of rubble and soil, but fortunately they have recovered well. New plants were brought in with the dumped soil and the verge now has Bluebells, Snowdrops and Daffodils to add to its 'native' species. Throughout the spring and summer, the Scotton roadside verge must be as beautiful a spot as one could find in the County.

A party of enthusiastic workers from Grimsby, under the guidance of Mr. and Mrs. L. Watkinson, came and spent a day enlarging Brasier's Pond. Later that year (1959) disaster struck. First of all, over one thousand square feet of the reserve were covered by potato haulm, dumped there by some local farmer. The haulm in itself did not do a great deal of damage, but naturally a large number of 'weed' seeds were brought along with it and very soon nettles and many other weeds were springing up. Prompt action and a great deal of pulling and chopping, mainly by my wife, saved the day and most of the weeds were prevented from seeding.

This was the least of the troubles, for in October, fire struck in the area which it had been hoped to develop as an oak wood. An area of about three acres was destroyed and tragically most of the oak trees died. The inevitable happened, and the following year the whole area was covered with Rosebay Willow-herb (*Chamaenerion angustifolium*). This plant is now fairly well under control thanks to the efforts of a party of Girl Guides who made a determined attack on it. Ling (*Calluna vulgaris*) is now re-establishing itself on the burnt ground, along with mosses and fungi.

When the Reserve was first acquired, the dominant plants in the central area were Ling and Purple Moor Grass (*Molinia caerulea*), but owing to various changes in the water-table, the Ling has largely disappeared and its place has been taken by Cross-leaved Heath (*Erica tetralix*). Bell Heather (*Erica cinerea*) grows only on the edges of the reserve and in quantity has remained almost stationary.

In addition to the work which was being done on the potato tops, etc., other jobs were being tackled. Notice boards were prepared and erected, a barbed wire fence was erected down most of the roadside and a ditch was dug across the opening used by the tractor which had brought the potato haulm.

In the meantime an even greater danger was threatening some of our rarer plants. In the heath area, the Deer Grass (*Scirpus cespitosus*), and in the wet area, the Marsh Orchid (*Dactylorchis praetermissa*) were threatened. The enemy this time was birch and pine scrub. The members of the management committee chopped, hacked and dug, but, in the very little time at their disposal, made very slow progress on the scrub. Fortunately Boy Scouts proved to be willing to tackle this problem and troops from Gainsborough and Scunthorpe set to work. They went through the central area like a bush fire and after three or four week-ends a two hundred foot wide 'ride' had been cleared down the full length of the Reserve. This wide open area very soon attracted a number of heathland breeding birds, among which were the Curlew, Nightjar and several species of duck. The Bog Asphodel began to spread, as did the Marsh Gentian, and the Heathers quickly covered the ground. Of course one can never relax. The birch scrub was not long before it started to regenerate and a healthy growth of birch again threatens us.

During 1961 we were fortunate enough to have a visit from the Conservation Corps who spent most of their time in clearing chopped trees and scrub. In addition they excavated a larger pond in another wet area of the Reserve. This we have named Armstrong's Pond, after Brigadier Armstrong who was in charge of the Conservation Corps.

New dangers threaten us all the time. The Electricity Generating Board informed the Trust that they wished to erect a pylon on the Reserve, and after much discussion it was decided not to oppose them. They were very co-operative and kept any damage down to an absolute minimum.

Meanwhile the task of recording has gone on a pace; Mr. J. H. Duddington has recorded a great many species of Lepidoptera, Mr. Brasier is very active with the repair and maintenance of nest boxes and my wife and children are busy plotting the vegetation.

The Reserve has been visited by many naturalists and Natural History Societies and they all agree that in Lincolnshire we have some of the best managed reserves in the country. Naturally, this kind of work is not only being carried out at Scotton, but also on all the county reserves. This has, I hope, helped to answer the question posed earlier "What happens to a piece of land once it has been acquired as a Nature Reserve?"

SOME FACTORS LIMITING THE DISTRIBUTION OF HALIMIONE PORTULACOIDES (L.) Aell var. LATIFOLIA (Gussone): SUBMERGENCE AND SOIL TYPE

by

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Introduction

Tansley, in his classic volume "The British Islands and their Vegetation", describes *Halimione* (*Obione*) *portulacoides* as a mealy greyish white undershrub which plays an important part in many salt marshes, especially on the eastern coast of England. Newman and Walworth recognised the importance of *Halimione* on the Lincolnshire marshes as long ago as 1919, but relatively little work has been done on this extremely interesting plant. The following is an account of some experiments designed to discover why the distribution of *Halimione* is limited to particular parts of the salt marshes on which it occurs. The experiments were performed on the Saltfleetby marsh during the summer of 1963.

Historical Note

Marsh (1915) observed that the separation of small creeks from tidal waterways by the growth of *Glyceria* (*Puccinellia*) and other plants resulted in a considerable decrease in the vigour of the bordering *Halimione*. He proposed that the presence of co-dominant *Halimione* in an *Armeria* community was due to the high percentage of sand in the soil. However, the suggestion that the distribution of *Halimione* is to some extent governed by waterlogging was not made until 1933 by Conway. The presence of an upper aerated layer in the Scolt Head marshes, closely correlated with the depth of plant roots, was shown by Chapman (1938), and in 1942 he stated that drainage conditions determine whether seedlings of *Halimione* can grow in a particular area or not, the adult plant being much more tolerant of poorly drained conditions. Chapman (1950) states that submergence and drainage are probably the factors controlling the lower limit of the distribution and that the necessity for occasional tidal inundation may determine the upper limit. This statement provides the starting point for the present work which is in two parts, *viz.:*

(*a*) the growth of *Halimione* seedlings under different water regimes on Saltfleetby marsh and under more controlled conditions in fibreglass containers away from the marsh;

(*b*) recording the present distribution of the adult plant on the marsh and interpreting this in the light of the results of the seedling growth experiments.

Seedling Growth Experiments

(1) The Marsh Site:

A suitable site, twenty-seven feet by twelve feet, was marked out in a *Puccinellia-Aster* community on the Saltfleetby marsh, frequent small bushes of *Halimione* being present also. The site contained three small tributaries of one creek in which were growing seedlings of *Halimione*, annual species of *Salicornia*, and *Suaeda maritima*. The area was accurately mapped and three plots, thirty inches by five inches approximately, were then sought in the eastern tributary at six inches, ten inches and fourteen inches above the arbitrary datum used for mapping. These plots are referred to as i, ii and iii respectively. Plots corresponding to these in aspect and height, numbered iv, v and vi, were also marked out in the western tributary. After the vegetation initially present on the plots had been cleared, twenty first year seedlings of *Halimione*, removed from nearby creek banks, were planted in each of the six plots. The shoot height of each plant was measured and statistical analysis showed that there was no significant difference in initial heights between the six groups.

The eastern tributary was dammed near its junction with the main creek, thus artificially keeping the water table in this tributary ten inches above the map datum, though a little lateral seepage proved inevitable. The western tributary was left as control, being subject to the normal tidal inundation. Lateral seepage from the experimental tributary into the control was eliminated by the presence of the middle tributary. The shoot height and mortality of the seedlings were recorded after thirty, sixty and eighty days (Fig. 1).

Analysis of the results shows that after thirty days mortality in the lowest of the waterlogged plots (i) was considerable (25%), and after sixty days almost all of the plants in this plot had died, compared with no deaths in the corresponding control plot (iv). A comparison of plots ii and v shows that the slower growth of plants in ii was somewhat significant at thirty days ($p < 0.1$), and highly significant at sixty and eighty days ($p < 0.01$), although mortality was negligible (5%). A comparison of plots iii and vi shows no significant difference in either mortality or growth rate; in iii the permanent water level varying between three and four inches below ground surface. A comparison of the three control plots, iv, v and vi, shows no significant difference in seedling height or mortality.

Thus we may conclude that *Halimione* seedlings are unable to tolerate waterlogging either with or without inundation of the above ground parts, and that this effect is readily shown in the field.

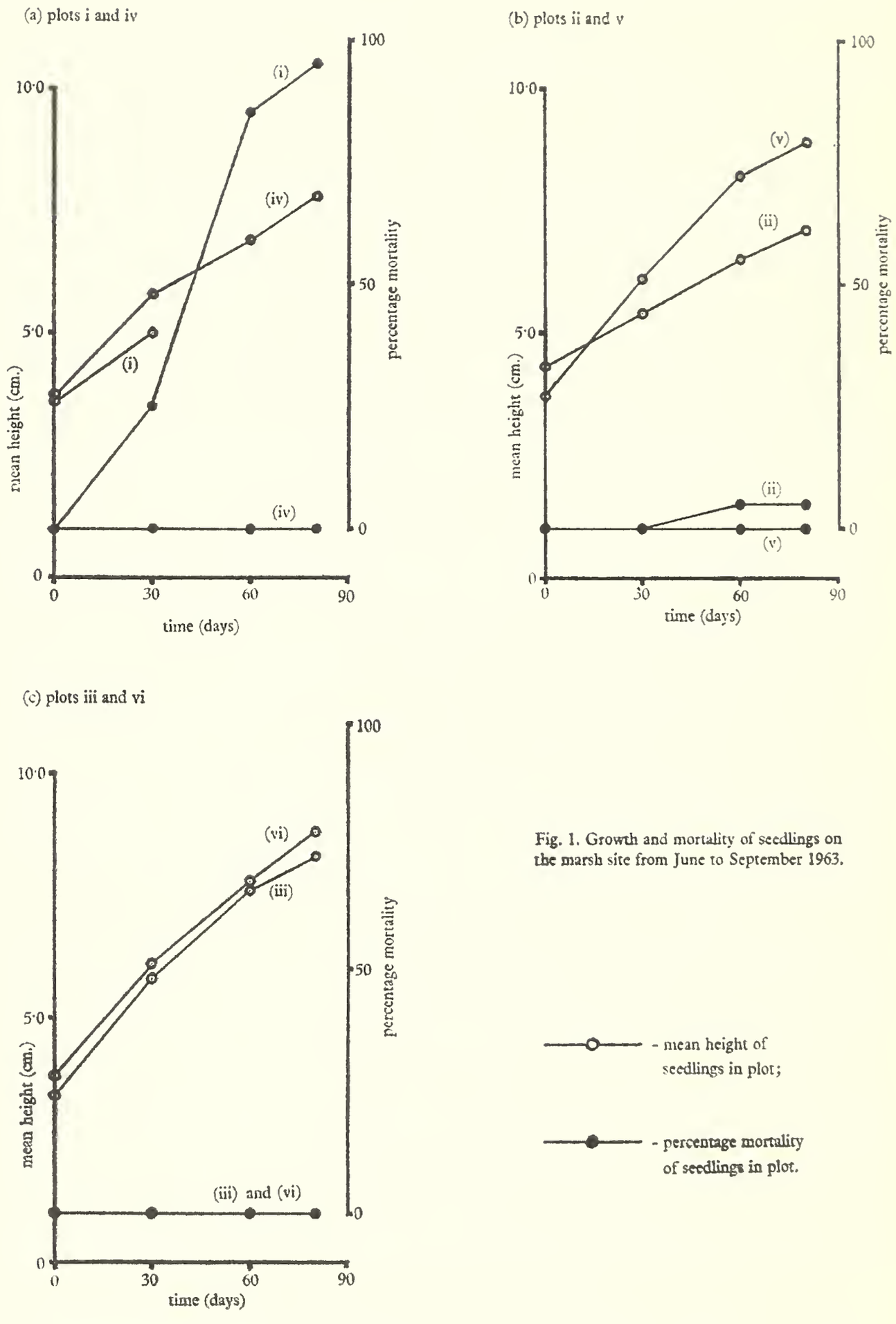

Fig. 1. Growth and mortality of seedlings on the marsh site from June to September 1963.

(2) The Trough Experiments:

To assess the effect of period of inundation on seedling growth in a more quantitative way, seedlings were grown in fibreglass troughs under accurately controlled conditions of inundation. It was considered probable that for any given inundation treatment the effect on growth would differ according to the medium in which the plants grew; thus for each inundation treatment three growth media were used, *viz.:* mud, sand, and an intimate mixture of 20% mud and 80% sand. Water retention, rate of air displacement and resistance to water movement were analysed in each of the three media; water retention by sustained heating at 100°C and recording loss in weight, rate of air displacement and resistance to water movement by placing a 1.5cm head of water above a 3.5cm depth of soil in a polythene funnel and recording time to the first drop to emerge from the base of the funnel and the subsequent rate of dropping (see Table 1 and Chapman 1960). It was found that, as expected, the sand medium had the greatest rate of air displacement, the lowest resistance to water movement and the smallest retention of water per unit weight. The mud medium formed the other extreme, with the mixture intermediate between the sand and mud.

Six fibreglass troughs, thirty-three inches square and nine inches deep, were each divided into two by a water-tight partition. Each half-trough was packed with one vertical slice of each of the three growth media, a small space being left along the side of each half-trough to facilitate the addition and removal of the nutrient solution by siphon.

Table 1 — Water relations of soils used in trough experiments.

Measure:	Medium:	Determination no.: 1	2	3
Time to first drop ∝ reciprocal of rate of air displacement:	mud	96 hrs.	96 hrs.	96+hrs.
	mixture	29 min.	11 min.	16½ min.
	sand	30 sec.	15 sec.	22 sec.
Mean time interval between consecutive drops ∝ resistance to flow:	mud	–	–	–
	mixture	8 min.	2¼ min.	3 min.
	sand	6 sec.	4½ sec.	3½ sec.
Loss in weight at 100°C ∝ water retention:	mud	41.3%	37.6%	–
	mixture	15.0%	17.3%	–
	sand	7.1%	8.3%	–

– = not recorded.

Three hundred and sixty first year *Halimione* seedlings were collected and estimates of seedling size were made by recording shoot length (above cotyledon level), root length (below cotyledon level) and fresh weight. Thirty seedlings were planted in each half-trough — ten seedlings in each of the three growth media. The allocation of seedlings was by a random method; analysis of the measures of initial size showed that the groups of ten seedlings did not differ significantly from each other.

Shortly after planting, the inundation treatments were begun using a modified Hoagland solution; this consisted of nutrients in the proportions given by Went (1957) added to natural sea water. The addition of nutrients ensured that any growth differences found can reasonably be ascribed to the different inundation treatments and to the physical, not chemical, nature of the growth media. Within each 24 hour period the seedlings were inundated for one period of 1, $2\frac{1}{2}$, $4\frac{1}{2}$, 7 or 24 hours. Inundation, except in the case of the total inudation treatment, was always carried out during the day time. The treatments were continued for forty-five days, new solutions being made up weekly. Shoot length and mortality were recorded at intervals; the results are shown in Fig. 2.

From Fig. 2 it can be seen that:

(*a*) the lowest mortality with both sand and mud is at the $4\frac{1}{2}$ hour per day inundation period;

(*b*) the highest growth rate on sand occurred at $4\frac{1}{2}$ hours inundation per day and on mud at 1 hour per day;

(*c*) the mortalities of plants on the mud and mixed media are approximately equal; mortality on the sand is much lower;

(*d*) the growth rate of plants on sand is much higher than that of plants on the mixed medium. This in turn is a little higher than that of plants on mud;

(*e*) complete mortality occurs under conditions of continuous inundation.

Considering both mortality and growth rate, there does not seem to be any mean inundation rate between 1 and 7 hours per day which completely suppresses *Halimione* seedlings once these are established. (However, the limited time scale of the experiment must be borne in mind here). It is clear though, that as one approaches either of these extremes, mortality rises and growth rate often falls, showing that some intermediate value gives optimum conditions for seedling growth and least mortality. The exact inundation rate giving these optimum conditions differs for the different media, being higher for the sand than for the mud — a reflection of the slower drainage in the mud compared with that in the sand.

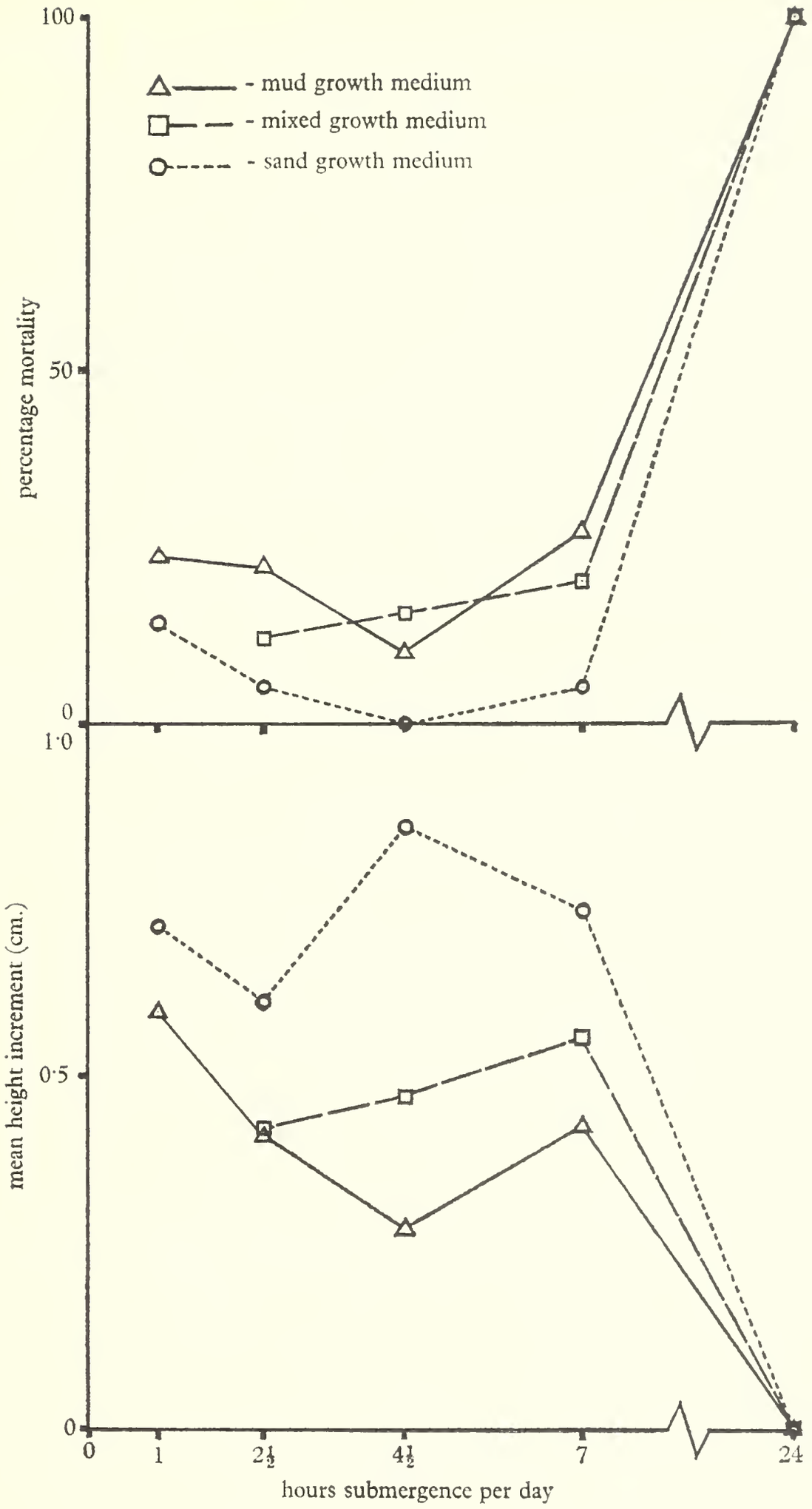

Fig. 2. Mortality and height increment of seedlings in trough experiments from 18 to 45 days after start of indundation treatments, July—August 1963. (Each point is the mean of two replicates, each of 10 seedlings).

The Present Distribution of Halimione on the Saltfleetby Marsh

The Saltfleetby marsh is roughly triangular in shape and is bordered by Saltfleet Haven to the north, by sand dunes to the south-west, the south-east being open to the sea (Ordnance Survey, Lincolnshire [parts of Lindsey] Sheet XLIX.3., 1906, 25 ins. to the mile). The present distribution of *Halimione* in relation to height above sea level and the nature of the soil was assessed by placing three transects, each of approximately 3,000 feet, across the marsh roughly parallel to the Haven (transect 1 being nearest to, and 3 farthest from, the Haven). Each transect was levelled, heights being related to nearby benchmarks. Higher plant frequencies were assessed at 250 ft. intervals using 100 point quadrats within subdivided 5 metre square quadrats. Five small pits were excavated in each large quadrat using a hand trowel; soil type and layering were noted.

The main results abstracted from the transect data are given in Table 2.

Inundation rates corresponding to the limits of *Halimione* growth have been calculated from local tide tables for a period of twelve months. The upper and lower limits of the extensive Halimionetum

Table 2 — Abstract of transect data.

	Transect number:		
	1	2	3
Upper limit of extensive Halimionetum:	+9.25	+9.25	–
Lower limit of extensive Halimionetum:	+8.25	+7.85	–
Upper limit of individual *Halimione* plants:	+9.65	+11.20	+8.75
Lower limit of individual *Halimione* plants:	+7.55 (on 6 ins. mud).	+7.20 (on 3 ins. mud. overlying sand)	+6.73 (on 0.1 ins. mud over lying sand)

Notes on Table 2

All heights are in ft. above Ordnance datum (Newlyn).

No extensive Halimionetum had developed on transect 3; this transect being considerably lower than 1 or 2.

In all cases individual *Halimione* plants were found up to the landward edge of the marsh; the high value of +11.20 ft. on transect 2 is due to the growth of *Halimione* on a sand spit near the centre of the marsh.

correspond to mean inundation rates of 0.8 and 2.0 hours per day (24 hours) respectively. From the results of the trough experiments one might have expected these mean rates to be higher, especially as Chapman (1950) states that *Halimione* is susceptible to waterlogging mainly in the seedling stage. However, the maximum inundation rates at these heights are 5.5 and 6.0 hours per day, and it may be these occasional maxima which determine the limit rather than the mean rate over the year. A factor present on the marsh, but absent in the troughs is competition with other species; on both transects where a Halimionetum is well developed this gives way at the seaward end to a dense Spartinetum.

Many thin, horizontal strata of sand were found in the mud of the Halimionetum. These may have considerable survival value for the community as drainage along the sand strata would be expected to occur much more quickly than through mud. The presence of the strata may even be caused by the presence of *Halimione*, the sturdy plants causing the deposition of wind blown sand from the nearby partly eroded dune system and from the expanses of sand to the south-east left bare at all but the highest tides.

The upper limit of individual *Halimione* plants, +11.2 ft., is approximately 1 ft. below the high water of the highest spring tides; thus the highest plants receive an occasional inundation. The lower limit, +6.73 ft., corresponds to a mean inundation rate of almost 4 hours per day, and also to a doubling of the maximum number of consecutive inundations as this level is covered by some neap tides.

The lower limits at which occasional *Halimione* plants are found fall from transect 1 to 3, the fall correlating with a marked thinning of the surface mud layer (see Table 2). The roots of the *Halimione* plants at the lowest extreme (transect 3) are almost entirely in mounds of sand initially accreted by *Spartina* clumps, indicating that the lower limit of growth is affected to some extent by drainage conditions and by the physical nature of the soil, as was indicated by the results of the trough experiments.

Summary and Conclusions

(1) First year seedlings of *Halimione portulacoides* var. *latifolia* were grown on the Saltfleetby marsh under waterlogged and non-waterlogged conditions. Waterlogging increased the seedling mortality and decreased the growth rate.

(2) Seedlings were grown away from the marsh in different soils under conditions of variable inundation. Optimum growth conditions occurred at inundation periods between 1 and $4\frac{1}{2}$ hours per day, the optimum period for the quickly draining sand being longer than for more slowly draining soils.

(3) The present distribution of *Halimione* on the Saltfleetby marsh was assessed and related to inundation period and soil type. Well

developed Halimionetum occurred at inundation periods similar to those found to be optimum in the seedling growth experiments, and on soil which, though mostly mud, had many thin strata of sand. The upper limit of individual plants occurred just below the level of high spring tides, and the lower limit corresponded with inundation by neap tides.

Acknowledgements

I should like to thank Dr. K. Taylor for help and advice throughout the work and Dr. P. J. Newbould for suggesting improvements in the typescript. Thanks are also due to Mr. E. Turner, M.A., for the provision of laboratory facilities, Mr. B. Teather for help with the inundation treatments, Mr. I. R. Stone, B.SC., for help in levelling the transects, and the Lincolnshire Naturalists' Trust for permission to work on the Saltfleetby-Theddlethorpe Dunes Nature Reserve. The work was undertaken during the tenure of a Lindsey County Council Aid to Student Grant.

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LINCOLNSHIRE PSOCIDS

MARK R. D. SEAWARD, M.SC., M.I.BIOL.

Lichens, fungi and algae growing on the bark of trees support animal populations. Common members of such communities are the psocids or barklice. An analysis by Broadhead (1958) of nine psocid species, which constitute over 95% of the psocid population on larch trees in the Pennine region, revealed that the psocid fauna exploit the microflora of the bark (the lichen — *Lecanora conizaeoides* Cromb., *Pleurococcus* sp. and fungal spores). The psocids were selective in their feeding habits: two species preferred *Lecanora conizaeoides* and seven species preferred *Pleurococcus*.

Scrutiny of Lincolnshire literature has revealed only one set of recordings. These were made by Mason (1896) and relate to *Elipsocus* (=*Mesopsocus*) *unipunctatus* (Müll.) — abundant on sycamore and elm trees in the Alford region (29/6/1889). This identification cannot, however, be regarded as reliable, since at that time the only revision of the British Psocoptera available was McLachlan's monograph (1867) in which *immunis* was regarded as a synonym of *unipunctatus*. McLachlan was the determinator for Mason's material. The two *Mesopsocus* species were only clearly differentiated about 1937, when Roesler recorded both species from Germany.

In the course of examining trees in the Brigg area for lichen records, I discovered an abundance of psocids. Subsequent examination has shown these to be nymphs of *Mesopsocus immunis* (Steph.). Specimens were taken mainly from the bark of sycamore trees (May 1964). Although they were found mainly on *Lecanora conizaeoides*, they normally graze on *Pleurococcus*, but they will graze on a little lichen if the preferred food is not available.

During August, I collected further specimens from lichens (mainly *Xanthoria parietina* (L.) Th.Fr., with a little *Lecanora conizaeoides* and *L.dispersa* (Pers.) Sommerf.) growing on concrete posts at Gibraltar Point. The psocids turned out to be adult stages of *Cerobasis guestfalicus* Kolbe, a wingless parthenogenetic species which is widely distributed throughout the country but more abundant in the south than in the north. Dr. E. Broadhead examined the gut contents of two of the specimens and found them to consists almost entirely of lichen. A few hyphae of the honey dew mould, *Sporodesmium*, were also present, but no *Pleurococcus*. It may well be that this species is a specialised lichen feeder.

Although these insects are small, it seems surprising that they have been overlooked by our entomologists in the past. I should be interested to hear of further records — more particularly of the details of substrate and diet of these fascinating insects.

I am particularly indebted to Dr. E. Broadhead of Leeds University for his identification of material, for information and for helpful criticism of this text.

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A TEMPORARY EXPOSURE OF LIAS NEAR CLEATHAM BARROW

Philip S. Doughty, m.sc., f.g.s.

In the summer of 1963 an excavation for drainage and irrigation purposes was made near the road south of the White House and near the round barrow at Cleatham (44/934013) and the upper part of the Lower Lias Clays was exposed. The stratigraphic position of the exposure was easily fixed, using as reference a known outcrop of the *Pecten* Bed in a stream bed in woodland 200 yards to the north-east. From this the top of the Lias exposed appeared to be about 15ft. below the *Pecten* Bed.

The section, from bottom to top, consisted of about four feet of clay, a calcareous mudstone up to 6 inches thick, immediately topped by a pyritized limestone resembling the *Pecten* Bed, and finally about a foot of clay containing nodules. The section could not be measured accurately since all but the top foot of clay was below water level.

The lower clays showed indications of compaction confirmed by the crushed condition of the contained fossils, but specimens of *Mactromya cardioides* (Philips) and *Pseudopecten* species were recognised.

The calcareous mudstone contained few fossils but after treatment *Pseudopecten* was extracted from one block. The mudstone frequently showed burrows of two diameters — the larger up to 8 mm. and the smaller up to 1 mm. No branching was observed on the larger types, but branching in two directions from a central burrow, like barbs on an arrow, was common on the smaller types. Similar structures have been described from Liassic rocks before, the burrows of larger diameter being ascribed to *Cylindrites* and the smaller branching types to Chondrites (Simpson, 1957). Although previously unknown in the county, later investigation showed *Chondrites* to be fairly common on many horizons in the Lias (Doughty, 1965).

Towards the top of the mudstone there is a rapid transition to a very shelly, highly pyritized limestone from which specimens of the following fossils were extracted.

Hippopodium ponderosum J. Sowerby.
Pseudopecten sp.
Mactromya cardioides Philips.
Lobothyris sp.
Pentacrinites sp.
Pleuromya sp.
Pinna folium Young and Bird.

The grey clays above the limestone were well weathered and yielded many nodules up to 3 inches in diameter, but on splitting none was found to contain fossil material. However, two part whorls of ammonites extracted from the clays were identified as belonging to the genus *Jamesonites* thus indicating that this part of the succession belongs to the *Jamesoni* Zone.

The Lias succession was overlain by 8 to 10ft of current bedded lacustrine sands interbedded with clays.

All specimens decribed are lodged with Scunthorpe Museum and are incorporated into the study collections.

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REPORT OF THE HONORARY GENERAL SECRETARY 1964

Seven general field meetings were held throughout the summer months as well as numerous sectional outings. The geologists, ornithologists, mycologists and marine biologists have been especially active in this respect. The junior members have been catered for at the senior meetings, and their Summer School at Gibraltar Point was much appreciated by those taking part. I should like to take this opportunity of thanking those senior members who assisted me with the course: Miss Stephanie Monk, Miss E. J. Gibbons, Mr. A. E. Smith, Mr. G. N. Hollland and Mr. E. H. Clifton.

The junior section as such would appear to have gone into partial retirement. This situation will continue unless a leader for them is forthcoming. In the meantime, I feel it is up to the average member of the Union to encourage junior membership. One of the greatest difficulties arises from the inaccessibility of many of the field meetings — I am sure that there are many spare seats in cars, and a little kindness

towards "the kid next door" would be much appreciated. This I feel sure is the only way to attract and maintain junior membership. Although it has appeared in the past that our junior membership has been strong, there has been a very big turnover in the members. Juniors can be very fickle and need all our encouragement.

Seventy members attended the Annual General Meeting, when Mr. Frank Norris, in his second year as President, took the chair and delivered a lecture on "Scotton Common Nature Reserve". Mr. R. E. M. Pilcher was elected Presedent, and Mr. J. H. Chandler was invited to accept the office of President-elect. Details of officers elected at this meeting to serve for 1964-65 will be found at the front of these *Transactions;* representatives to serve on the various committees were re-elected.

Field meetings were held at Normanby Park (9th May), Gibraltar Point (23rd May), Denton Reservoir (13th June), Wilsford Heath (11th July), Stapleford Moor (23rd July), Frieston Shore (8th August) and Woodhall Spa (19th September). The Fungus Foray, under the leadership of Miss G. M. Waterhouse, was held at Wharton Wood and Thonock Woods, near Gainsborough (10th October). A geology field excursion (27th June), under the leadership of Dr. P. E. Kent and Dr. A. Straw, to see the Cretaceous sequence in the Wolds and visit the systems of overflow channels and glacial deposits in the eastern part of the Wolds, was well subscribed to.

Dr. Bruce Campbell's excellent lecture (26th September) entitled "22 years of Nest-boxes" was very well attended — over 100 members being present. In February, members were again treated to an absorbing lecture, entitled "Climate and the Changing Flora of Britain", by Dr. F. H. Perring.

A successful Sectional Officers' Meeting and Exhibition was again held in November. A further issue of the *Transactions* has been issued, together with an index to volume 15. The Union also hopes to undertake a publicity campaign, and to this effect a new prospectus has been printed.

On a less-encouraging note I have to record the movement of three of our officers from our boundaries: Mr. E. H. Clifton, who has done so much for the Union over the past few years is moving North. He still hopes to attend meetings, and will remain as President of the "Marine and Fresh-water Biology Section." I should like to record my personal thanks for the assistance he has afforded me at all times during my secretaryship. We wish him, and his family, all future happiness in their new environment. Mr. T. E. L. Langford, secretary of the same section, has taken up new employment in the Birmingham area, and Dr. Allan Straw, secretary of the Geology Section, will be in the United States for a year. We note too, with regret, the resignation of Professor C. G. C. Chesters, a past-president of the Union.

Finally, may I thank you all, both officers and members, for your help and support in my secretarial duties.

REPORT OF THE HONORARY MEMBERSHIP SECRETARY AND TREASURER, 1964

It is a pleasure to welcome twenty-five new members and it is hoped that they will find much to interest them in this large county and that they will make many friends from the total membership of 328. Since the postal increases the cost of sending out a notice for a meeting to all our members is about £6 0s. 0d. This has considerably increased our costs and the Union would benefit by a further accession of new members, not only of specialists but also those who wish to join for the enjoyment of the countryside.

Honorary Life Members	2	
Life Members	27	
Ordinary Members	242	328
Group Membership	15	
Junior Members	42	

The following members have been elected during 1964:

ORDINARY MEMBERS

Bacon, Fl.Lt., R. W., 15 Thirsk Drive, Lincoln.
Baker, The Rev. R. P., M.A., 146 Wragby Road, Lincoln.
Baker, Mrs. R. P., 146 Wragby Road, Lincoln.
Butwright, F., Bridge Villa, Quadring Road, Gosberton, Spalding.
Curtis, F., The Cedars, West Drive, Sudbrooke Park, Lincoln.
Curtis, Mrs. D. A., The Cedars, West Drive, Sudbrooke Park, Lincoln.
Goom, Miss N., F.L.A., 101 North Parade, Sleaford.
Hurst, J., 38 Tytton Lane East, Wyberton, Boston.
Latham, J. J., Manor House, Wilsford, Grantham.
Ling, Mrs. E., 23 Eastfield Road, Louth.
Lubin, M. M., M.B., B.S., 2 Curle Avenue, Lincoln.
Lubin, Mrs. M. M., 2 Curle Avenue, Lincoln.
Morgan, J. R., B.SC., D.P.A., A.C.I.S., The Red House, Low Road, Barrowby, Grantham.
Norman, R. K., 75 St. Peters Avenue, Cleethorpes.
Race, Mrs. R. M., F.L.S., A.M.A., 11 Curle Avenue, Lincoln.
Richards, Mrs. E. M., DIP. HORT., Staniland, Wrawby Road, Brigg.
Shaw, J. K., 6 Chambers' Farm Cottages, Hoop Lane, Apley, Wragby.
Vaughan, R., M.A., PH.D., 102 Westbourne Avenue, Hull.

STUDENT MEMBER

Pepler, G. R. M., Greystones, Welton.

JUNIOR MEMBERS

Bush, N. J., 5 Burnham Road, Scunthorpe.
Curtis, F., The Cedars, West Drive, Sudbrooke Park, Lincoln.

Freeman, Miss A., 115 Yarborough Crescent, Lincoln.
Hydes, P., 24 Eastbrook Road, Lincoln.
Lubin, Miss Hilary, 2 Curle Avenue, Lincoln.
Lubin, Miss Helen, 2 Curle Avenue, Lincoln.

CHANGE OF ADDRESS

Bates, A. D., Woodthorpe, Tor-o-Moor Road, Woodhall Spa.
Butcher, Dr. R. W., Chalene, Hillstone Close, Portesham, Weymouth, Dorset.
Bowler, R. J., B.SC., N.D.A., The White House, Washdyke Lane, Nettleham.
Bows, Miss B. J., Littlecote, Subdrooke Road, Nettleham.
Credland, A., 59 East Park Avenue, Hull.
Houghton, H. J., 7 Willingham Road, Lea, Gainsborough.
Knibb, Miss A. J., 42 Morton Terrace, Gainsborough.
Robinson, D. N., M.SC., 160 Eastgate, Louth.
Seaward, M. R. D., M.SC., M.I.BIOL., 97 Holywell Drive, Loughborough.
Straw, A., B.A., PH.D., McMaster University, Hamilton, Ontario, Canada.

We have lost 23 ordinary members, many of whom have left the county. It is with great regret that we record the death of Mrs D. A. H. Knott of Louth. Mr. and Mrs. Knott have been considerable benefactors of the Union and came to our aid most gallantly in 1963 when our financial position was very difficult. We are indeed glad to know they enjoyed our meetings and are sorry they have been unable to join us in recent years.

BOTANY

MISS E. J. GIBBONS

A late spring, followed by a wet June, ushered in a sunny dry summer, the best since 1959. The first meeting at Normanby Park was rather early for much show of spring flowers in the exposed parkland but the fishpond made a nice variety of habitat. In the gardens a sheet of Blue-boy Speedwell (*Veronica filiformis*) naturalised in the lawn grass made a fine show. Dog Violets (*V. canina*) with a white form, were noticeable in the park with Spring Vetch (*Vicia lathyroides*), Birds-foot vetch (*Ornithopus*), Teesdalea, Barren Strawberry (*Potentilla sterilis*) and Blue Fleabane (*Erigeron acre*). By the fishponds Ivy-leaved Crowfoot (*Ranunculus hederaceus*) was found among other water plants.

The June Meeting at Gibraltar Point was on well worked ground and no new records were made. On a later visit in August with L.N.U. Juniors a mass of *Clematis* was seen on Sea Buckthorn bushes, it was some way north of the observatory hut, but not previously recorded for the reserve.

Ancaster was pleasant in July with plenty of limestone plants in flower. The Wilsford stone quarries were visited first and later some of

the members went to the Valley. Carline Thistle, Yellow-wort (*Blackstonia*), Sweetbriar, Viper's Bugloss, Corn Gromwell (*Lithospermum arvense*), Ploughman's Spikenard (*Inula conyza*) were seen in the first quarry and a very fine clump of Spotted Orchis (*O.fuchsii*), 18 ins. high. A very few Bee Orchids were found and Pyramid and Fragrant Orchids were scarce.

A mid-week field meeting was arranged on July 23rd, so that members who are not free on Saturdays could come. Stapleford Moor was a pleasant spot with heather in flower and a number of moorland plants. Two fresh records were made for the locality: Hairy St. Johnswort and a Heath grass (*Sieglingia decumbens*). Other plants seen which were already recorded, Marsh Stitchwort (*Stellaria palustris*) Centaury, Bog and Marsh Bedstraw, Water Purslane (*Peplis portula*) and Meadow Thistle (*Cirsium dissectum*).

Frieston Shore, once a popular seaside resort before the Boston Haven "New Cut" was made and washed mud all over the bathing beach, was visited in August. The usual shore plants were seen before the heavens opened. Mr. E. Swann, a leading botanist from Kings Lynn, was impressed by the quantity of Wild Chamomile (*Matricaria recutita*) on arable land and roadsides.

At Woodhall Spa in September, members went to the Kirkby Lane Forestry ground. Several ferns were noted and Trailing Tormentil (*Potentilla anglica*), Heath Speedwell (*Veronica officinalis*), Harebells, Wood Cudweed (*Gnaphalium sylvaticum*), Wild Golden Rod (*Solidago virgaurea*) and Wood Groundsel were seen.

The Fungus Foray at Thonock on a lovely October day was very pleasant in the woods and park. Upright St. Johnswort (*Hypericum pulchrum*), Trailing Tormentil (*Potentilla anglica*) and Heath Bedstraw were found. The Lake was very dried up but Lake Clubrush, (*Scirpus lacustris*), Woody Nightshade (*Solanum dulcamara*) and Gipsywort (*Lycopus europaeus*) were growing in it.

During the year progress has been made on the typescript for the county Flora. Several critical species have been named by specialists including Euphrasias and Potamogetons.

County Records:

212/8	*Potentilla norvegica* L.	10	Z.P.
655/4	*Scirpus sylvaticus* L.	7	N.R.

Divisional Records:

685/1	*Agropyron caninum* (L.) Beauv.	6	G. H. Seal
697/2	*Aira caryophyllea* L.	8	J.G.
697/1	*A. praecox* L.	9	J.G. & N.R.
683/13	*Bromus lepidus* Holmberg	16	J.H.C.

683/12	*B. thominii* Hardouin	16 & 17	J.H.C.
154/2	*Chenopodium polyspermum* L.	8	J.G.
559/2	*Crepis vesicaria* L.	14	J.G.
663/2	*Carex distans* L.	10	N.R.
21/6	*Dryopteris carthusiana* (Vill.) H.P. Fuchs	4	J.G.
435/22	*Euphrasia anglica* Pugsl.	10	J.G. (det. P.F. Yeo)
435/16	*E.pseudokerneri* Pugsl.	7, 10 & 13	J.G. (det. P.F. Yeo)
207/5	*Lathyrus tuberosus* L.	14	Miss S. Lyon (per C. J. Allerton)
189/1	*Ononis repens* L.	1	J.G.
440/8	*Orobanche minor* Sm.	18	J.G.
212/14	*Potentilla anglica* Laichard.	5	L.N.U.
577/11	*Potamogeton friesii* Rupr.	3	J.G.; 6 W.H.;
		10	Z.P. (det. J. E. Dandy)
341/4	*Quercus petraea* (Mattuschka) Liebl.	4	J.G.; 15 J.H.C.
506/7	*Senecio viscosus* L.	10 & 11	J.G. & N.R.
652/2	*Sparganium emersum* Rehm.	2	J.G.

J.H.C. — J. H. Chandler
J.G. — Miss E. J. Gibbons
W.H. — Miss W. Heath
Z.P. — Mrs. Z. Porter
N.R. — Miss M. N. Read
L.N.U. — Lincs. Nat. Union Field Meeting

BRYOLOGY

MARK R. D. SEAWARD, M.SC., M.I.BIOL.

3/2 *Atrichum undulatum* (Hedw.) P.Beauv. This woodland moss is common in Lincolnshire, and often conspicuous by its production of many sporophytes. Closer examination reveals that there are many polysetous inflorescences. Data for Lincolnshire material examined by myself are compared below with data for material from the Midlands (see Longton, 1962).

	Lincolnshire	Midlands
No of collections examined	19	9
Total no. of fertile inflorescences examined	1689	1598

No. of inflorescences		
with 1 sporophyte	1537 (91.00%)	1459 (91.3%)
with 2 sporophytes	139 (8.23%)	132 (8.3%)
with 3 sporophytes	12 (0.71%)	7 (0.4%)
with 4 sporophytes	1 (0.06%)	0

It is hoped to publish a more comprehensive account of this work at a later date.

77/27-31 *Bryum erythrocarpum* complex

This group of mosses has recently been surveyed by Crundwell and Nyholm (1964). As a result of their work, nine species have been designated to this group; the members of which are characterized by having gemmae on their rhizoids. Lincolnshire herbarium material is meagre; the following vice-county records are based on this material:

B. ruderale Crundw. & Nyh., *B. violaceum* Crundw. & Nyh. and *B. klinggraeffii* Schimp.

V. C. 53. East of Woolsthorpe, October 1962, H. L. K. Whitehouse.

B. micro-erythrocarpum C. Müll & Kindb.

V. C. 53. Foston, Sept. 1962, A. C. Crundwell.

V. C. 54. Scotton, June 1930, G. H. Allison.

B. rubens Mitt.

V. C. 53. Nocton, July 1959, M. Seaward.

V. C. 54. Little Coates, March 1945, G. H. Allison.

78/1 *Rhodobryum roseum* (Schimp.) Limpr.

Records for this moss in North Lincolnshire are not substantiated by herbarium material. Intense survey work by myself in the area around Appleby station (site of Allison's record in 1933) has failed to locate this moss. There is also a record by Peacock (Cadney, 1901) in the local registers.

131/1-6 *Drepanocladus* spp.

Details of the distribution of this genus in Lincolnshire have been published during the past year (see Seaward, 1964).

149/4-11 *Plagiothecium denticulatum-sylvaticum* group.

Records, based on existing herbarium material, have been revised according to Greene (1957) and are as follows:

4. *P. denticulatum* (Hedw.) B., S. & G. divs. 4, 7, 11, 13, 15.

5. *P. ruthei* Limpr. divs. 2, 3, 4.

6. *P. curvifolium* Schlieph. ex Limpr. div. 3, 4, 10, 13, 15.

10. *P. succulentum* (Wils.) Lindb. divs. 6, 7, 10.

11. *P. sylvaticum* (Brid.) B., S. & G. divs. 4, 6, 7, 10, 15, 16.

Moss Records for 1964:

Vice-county Records:

8/6 *Fissidens crassipes* Wils.

V. C. 53. Newstead Mill, Uffington, Feb. 1964, J. H. Chandler. V. C. 54. weir walls, R. Bain, nr. Roughton, Aug. 1964 (but known here for three years) Miss S. Monk.

73/14 *Pohlia delicatula* (Hedw.) Grout

V. C. 53. Newstead Mill, nr. Uffington, Sept. 1964, J. H. Chandler.

79/13 *Mnium seligeri* (Jur. ex Lindb.) Limpr.

V. C. 53. Hartsholme, April 1960, M. Seaward.

135/2 *Isothecium myosuroides* Brid.

V. C. 53. Old Park Wood, Irnham, Jan. 1964, J. H. Chandler. The record from Cranwell (1898, Miss S. C. Stow) is not substantiated by herbarium material. Both *I. myosuroides* and *I. myurum* are on the decrease in most areas of Lincolnshire.

153/1.n. *Hypnum cupressiforme* var. *lacunosum* Brid.

V. C. 53. Carlby Quarry, March 1964, J. H. Chandler.

Divisional Records:

1/9 *Sphagnum squarrosum* Pers. ex Crome

div. 16. Copthill gravel-pits, Aug. 1964, J. H. Chandler.

1/19.b. *S. subsecundum* var. *inundatum* (Russ.) C. Jens.

div. 7. Linwood Warren, Aug. 1960, M. Seaward.

1/20 *S. fimbriatum* Wils.

div. 16. Copthill gravel-pits, May 1964, J. H. Chandler.

5/6 *Polytrichum piliferum* Hedw.

div. 16. sandpit, Careby, March 1964, J. H. Chandler.

5/7 *P. juniperinum* Hedw.

div. 16. sandpit, Careby, March 1964, J. H. Chandler.

8/14 *Fissidens cristatus* Wils.

div. 16. Carlby Quarry, March 1964, J. H. Chandler.

27/1 *Dicranoweissia cirrata* (Hedw.) Lindb.

div. 2. Normanby, May 1964, Miss S. Clifton.

div. 16. Stamford, Sept. 1964, J. H. Chandler.

29/13 *Dicranum scoparium* Hedw.

div. 16. Copthill gravel-pits, May 1964, J. H. Chandler.

31/5 *Campylopus pyriformis* (Schultz) Brid.
div. 15. on sand, Blind Eye Quarry, Feb. 1964, J. H. Chandler.

34/5 *Encalypta streptocarpa* Hedw.
div. 16. Carlby Quarry, March 1964, J. H. Chandler.

44/2 *Barbula unguiculata* Hedw.
div. 16. Uffington Meadows, March 1964, J. H. Chandler.

71/2 *Orthodontium lineare* Schwaegr.
div. 12. Friskney Decoy Wood, March 1964, H. J. Houghton.

77/25 *Bryum bicolor* Dicks.
div. 9. Humberstone, 1911, J. J. Marshall.

79/1 *Mnium hornum* Hedw.
div. 12. Friskney Decoy Wood, March 1964, H. J. Houghton.

81/1 *Aulacomnium palustre* (Hedw.) Schwaegr.
div. 15. nr. Woolsthorpe Wharf, June 1964, M. Seaward.

81/3 *A. androgynum* (Hedw.) Schwaegr.
div. 16. nr. Newstead Mill, March 1964, J. H. Chandler.

131/4 *Drepanocladus fluitans* (Hedw.) Warnst.
div. 15. nr. Woolsthorpe Wharf, June 1964, M. Seaward.

Liverwort Records for 1964:

County Record:

14/3 *Pellia neesiana* (Gottsche) Limpr.
Old Park Wood, Irnham, Jan. 1964, J. H. Chandler.

Vice-county Records:

31/2 *Lepidozia reptans* (L.) Dum.
V. C. 53. Doddington, Jan. 1964, M. Seaward.

33/7 *Calypogeia arguta* Nees & Mont.
V. C. 53. Old Park Wood, Irnham, Oct. 1964, J. H. Chandler.

Divisional Records:

6/1 *Lunularia cruciata* (L.) Dum.
div. 16. Newstead Mill, March 1964, J. H. Chandler.

12/6 *Riccardia pinguis* (L.) S. F. Gray
div. 3. nr. North Kelsey, Nov. 1964, M. Seaward.

14/4 *Pellia fabbroniana* Raddi
div. 16. Newstead Mill, March 1964, J. H. Chandler.

31/2 *Lepidozia reptans* (L.) Dum.
div. 10. nr. Woodhall, Jan. 1964, Mrs. O. V. Spurrier.

44/1 *Gymnocolea inflata* (Huds.) Dum.
div. 2. Twigmoor, March 1964, M. Seaward.

56/1.b. *Plagiochila asplenioides* var. *major* Nees
div. 15. Elliot's Wood, Corby Glen, Jan. 1964, J. H. Chandler.

57/3 *Lophocolea heterophylla* (Schrad.) Dum.
div. 2. nr. Scunthorpe, April 1964, M. Seaward.
div. 13. Stapleford, May 1964, M. Seaward.

Index numbers and nomenclature are according to Warburg (1963). Thanks are due once again to the many who have contributed during the past year — especially Miss W. Heath, Mrs. O. V. Spurrier, Mr. E. H. Clifton, Mr. J. H. Chandler and the referees and officers of the British Bryological Society.

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LICHENOLOGY

Mark R. D. Seaward, m.sc., m.i.biol.

The present knowledge of lichen acids is due, in large part, to the work of Asahina in Japan. Many of these acids give distinct colour reactions with different chemicals and, since most lichen species always contain certain acids, these tests are very useful for making identifications. A few morphologically identical plants however differ in their colour reactions. These chemically different plants or strains have often been given the status of species. However, some of these strains have no taxonomic rank. Chemical strains usually have distinct patterns of distribution. Specimens of *Cladonia rangiformis* Hoffm. (907) collected from mature sand dunes at Gibraltar Point (August

1964, Seaward) appear to belong to the fumarprotocetraric acid chemical strain according to Mr. J. R. Laundon (3/9/64). It is interesting to note that both strains occur at this location — an unusual occurrence for the British Isles.

A preliminary list of other Gibraltar Point lichens has also been made this year.

Habitat studies have been the main concern during the past year, although the registers continue to swell with records: 8 vice-county records (listed below) have been made, and the divisional records are far too numerous to list here.

Work has also begun on the 10 km. grid square mapping. This work is still in its infancy and does not pretend to be so ambitious at this stage as the B.S.B.I. scheme. Nevertheless much needs to be done, and I should welcome the assistance of Union members in this venture.

Vice-county Records for 1964:

Xanthoria aureola (Ach.) Erichs. (697. var.)
V. C. 53. Carlby, Oct. 1964, J. H. Chandler.
V. C. 54. Gibraltar Point, May 1964, M. Seaward.

Caloplaca pyracea (Ach.) Th. Fr. (721)
V. C. 53. Stamford, Sept. 1964, J. H. Chandler.

Candelariella vitellina (Hoffm.) Müll. Arg. (748)
V. C. 53. Stamford, Sept. 1964, J. H. Chandler.

Physcia adscendens (Th. Fr.) Oliv. em. Britt. (758. var.)
V. C. 53. Woolsthorpe Wharf, June 1964, M. Seaward.

Cladonia polydactyla (Flörke) Spreng. (919)
V. C. 53. Stapleford, March 1964, Miss W. Heath.

Peltigera spuria (Ach.) DC. (996)
V. C. 53. Careby, March 1964, J. H. Chandler.

P. polydactyla (Neck.) Hoffm. (999)
V. C. 53. Woolsthorpe Wharf, June 1964, M. Seaward.

I should like to record my thanks once again to Mr. J. R. Laundon for identification and confirmation of much of the Lincolnshire material.

MYCOLOGY

Miss G. M. Waterhouse, M.Sc., and H. J. Houghton

During the year, specimens have been sent in to Miss Waterhouse at Kew by Mr. G. Holland, (of which 2 were new records for Division 14), Mr. F. T. Baker (1 specimen — already recorded) and Mr. H. J. Houghton (of which 12 were new Divisional Records).

The fungus foray this year was held at Thonock Woods, near Gainsborough, on the 10th October 1964 by kind permission of the Agent for Sir Edmund Bacon, Bart. Despite the previous dry weather, the meeting produced two new records for the County, seven new records for Division 5 (including the earth star, *Geastrum triplex*) and 30 species already recorded for Division 5.

FUNGUS FORAY

OCTOBER 10TH, 1964

New Records for the County:

Hypoxylon fragiforme (Pers.) Kickx.
Ustulina deusta (Fr.) Petr.

New Records for Division 5:

Lycoperdon depressum Bon.
Geastrum triplex Jungh.
Lyophyllum decastes (Fr.) Sing.
Polyporus perennis (L.) Fr.
Calocera viscosa (Pers.) Fr.
Peziza repanda Pers.
Bulgaria inquinans Fr.

Other finds — not new Records:

Recorded at the foray 1949:

Lycoperdon pyriforme Pers.
Scleroderma aurantium Pers.
Phallus impudicus (L.) Pers.
Flammulina velutipes (Curt.) Karst.
Collybia peronata (Bolt.) Kumm.
Mycena galericulata (Scop.) S. F. Gray.
Pholiota aurivella (Batsch) Kumm.
Stropharia aeruginosa (Curt.) Quél.
Coprinus atramentarius (Bull.) Fr.
Coprinus micaceus (Bull.) Fr.
Polyporus giganteus (Pers.) Fr.
Fistulina hepatica (Huds.) Fr.
Polystictus versicolor (L.) Fr.
Stereum hirsutum (Willd.) Fr.
Stereum spadiceum Fr.

Auricularia judae (Hook.) Underw.
Auricularia mesenterica (Dicks.) Fr.
Dacromyces deliquescens (Bull.) Duby
Nectria cinnabarina (Tode) Fr.
Daldinia concentrica (Bolt.) Ces. & de N.

Not found at the foray, 1949:

Pluteus cervinus (Schaeff.) Kumm.
Tubaria furfuracea (Pers.) Gill.
Agaricus campestris L. ex Fr.
Psathyrella hydrophila (Bull.) Maire
Polyporus betulinus (Bull.) Fr.
Polyporus squamosus (Huds.) Fr.
Inonotus hispidus (Bull.) Karst.
Ganoderma applanatum (Pers.) Pat.
Coryne sarcoides (Jacq.) Tul.
Xylosphaera polymorpha (Pers.) Dumort.

Other new records for 1964:

	Division
Cyathus striatus (Huds.) Pers.	10
Pleurotus cornucopiae (Paul.) Roll.	5
Inocybe maculata Boud.	10
Psilocybe semilanceata (Fr.) Kumm.	5
Inonotus hispidus (Bull.) Karst.	5
Stereum rugosum (Pers.) Fr.	14
Peziza micropus Pers.	5
Peziza proteana (Boud.) Seav.	5
Peziza varia (Hedw.) Fr.	2
Trichoscyphella hahniana (Seav.) Mann.	12
Fusarium merismoides Corda (On sugar beet)	12
Chaetomium elatum Kunze ex Fr.	6
Phyllachora graminis (Pers.) Fuck.	14
Licea tenera Jahn	2
Perichaena corticalis (Batsch) Rost.	12
Stilbum tomentosom Schrad. ex Fr.	12

ENTOMOLOGY

Lepidoptera

G. A. T. JEFFS, F.R.E.S.

It seemed that we should never again be able to report a 'good year' for insects, however 1964 has in fact been almost that. The long spells of dry sunny weather have been ideal for lepidoptera and some species have been very plentiful indeed, although the number of different species noted during the year has remained about the same — some two hundred and fifty species. If it were possible to have similar conditions next year I feel certian we should see a fairly big increase in numbers all round.

Among the butterflies, Satyrids have been most plentiful, with the possible exception of the Speckled Wood (*P. aegeria* L.) which was only noted in anything like fair numbers by the Reverend Canon G. Houlden at Skellingthorpe, Walls (*D. megera* L.), Meadow Browns (*M. jurtina* L.) and Small Heaths (*C. pamphilus* L.) were all seen in very good numbers. The Gatekeeper (*M. tithonus* L.) was particularly common at Stapleford Moor on 23rd July when the L.N.U. visited the area, and the Ringlet (*A. hyperanthus* L.) too was common in the Ancaster area on 11th July.

The Greyling (*E. semele* L.) has been reported in good numbers from Messingham by Mr. J. H. Duddington, but there would seem to be very few localities where this insect can now be found.

The continued absence of records of Fritillaries is noticeable. It is difficult to account for this but with more favourable breeding conditions they may again appear in small numbers in suitable localities.

The Vanessids have put in a particularly good show, and that notorious migrant the Painted Lady (*V. cardui* L.), not seen since 1962, has been abundant and seen in most parts of the county. At Grimsby on 16th August, 23 plus were noted in a clover field.

Red Admirals (*V. atalanta* L.) have been common this year all over the county; the first was noted on 18th May and the last on 27th September at South Ferriby. Peacocks (*N. io* L.), whilst seen in fair numbers, have not been anything like as plentiful as the Red Admirals. Small Tortoishells (*A. urticae* L.) have also been common and widespread, but once again there has been no sign of the Comma (*P. c-album* L.); the last one to be noted was during 1962. I have only one report of the White Admiral (*L. camilla* L.) this year; it came from Mr. R. E. M. Pilcher in the Boston area.

The Holly Blue (*C. argiolus* L.) had not been seen again this year, but the Common Blue (*P.icarus* Rott.) has been noted in good numbers. The Chalkhill Blue (*L. coridon* Poda.) has, as usual, been seen at Ancaster. I was in this area at the beginning of August and saw them flying quite plentifully along the usual strip of roadside.

The Hairstreaks seem to have done quite well. Brown (*T. betulae* L.), Purple (*T. quercus* L.), and White Letter (*S. w-album* Knoch.) have all been reported, but strangely no Green Hairstreaks (*C. rubi* L.). The latter were once the commonest species in this sub-family.

The usual Whites have all been plentiful. The Orange Tip (*E. cardamines* L.) has been seen in far greater numbers than in the previous two years. The first one was noted by Mr. G. N. Holland in Sleaford on 16th May, (quite an early date; June is the more usual month for their appearance).

Although I have read that the Clouded Yellow (*C. croceus* Fourc.) has been seen in many parts of the country, (I saw many in Devon myself during August), none have been reported from Lincolnshire. The last one seen was in 1961. Similarly no Brimstones (*G. rhamni* L.) have been seen either. It is now two years since this usually early starter has been noted.

The Large (*A. sylvanus* Esp.), Grizzled (*P. malvae* L.), Dingy (*E. tages* L.) and Small Skippers (*T. sylvestris* Poda.) have all been reported again, but only a single specimen of the Chequered Skipper (*C. palaemon* Pall.), has been seen; this time by the Rev. Canon G. Houlden on 22nd May at Skellingthorpe.

On the whole I would say this has been quite a good year for our butterflies. There has certainly been a great improvement upon the last four or five years, but even so, there have been many noticeable absentees.

For moths, without any doubt, it has been a far better and more productive year; a fact born out very clearly by the numbers turning up to light at nights. One evening in the Woodhall Spa area, Mr. Holland, Mr. Bebbington, and myself recorded no less than seventy-five different species at the M.V. lamp. We were all kept very busy until the early hours of the morning.

Space would not permit me to mention all the species taken or recorded throughout the year and entered in the County records, but I will note just a few which I feel are of particular interest.

In addition to the usual Hawk moths, four specimens of the Death's Head (*A. atropos* L.) have been found and there is a single record of the Convolvulus Hawk (*H. convolvuli* L.) taken at Crowle during late August. The Humming-bird Hawk (*M. stellatarum* L.) has been seen by Mr. Pilcher in the Boston area. This is an interesting record for it has not been noted in the County since 1961. Being an imigrant, its presence is always unpredictable even when given the most suitable conditions.

All our usual noctuids have been seen in fair numbers. Mr. Duddington has once again taken the Birds Wing (*D. scabriuscula* L.) at Laughton. You may remember it was first recorded in the County only last year. However, this year he had the good fortune to find quite a few specimens.

The Wainscotts have been very plentiful. In addition to the usual common species recorded, Mr. Duddington took specimens of four local and rare species: the Obscure (*L. obsoleta* Hubn.), Southern (*L. straminea* Treits.), Fen (*A. phragmitidis* Hubn.) and Striped Wainscott, (*L. podorina* Schiff.). The first three species were taken from the Amcotts area and the last mentioned from Epworth. These are all good and interesting records for the County; I have no previous record of the Striped Wainscott being taken. From Mr. Pilcher, there is note of a rare form of the Silky Wainscott (*C. maritima* Tausch.), together with records of the Southern Wainscott (*L. straminea* Treits.) and the Twin-spotted (*N. geminipuncta* Hatch)..

On 26th August at Laughton, Rear Admiral Torlesse took a single specimen of the Butterbur (*H. petasitis* Doubl.). This is another most interesting capture. The last record of this species in Lincolnshire is way back in 1860. On the same night Rear Admiral Torlesse also took a specimen of the Gold Spot (*P. festucae* L.); although by no means rare it is very seldom recorded.

A further interesting record for the County was the single specimen of the Neglected (*A. castanea* Esp.) taken at Epworth by Mr. Duddington. He also reported the Wormwood Shark (*C. absinthii* L.), which is only the second time it has been recorded. Mr. Holland, who found the Chamomile Shark (*C. chamomillae* Schiff.) at Sleaford, also sends records for the Pine Beauty (*P. griseovariegata* Goeze) and a specimen of the Beautiful Hook tip (*L. flexula* Schiff.). The latter were taken on the night of 17th July at Roughton Moor, when we recorded seventy-five different species. Also, among those recorded on this occasion, were the Scarce Silver Lines (*P. bicolorana* Fuessl.), Grass Emerald (*P. pruinata* Hufn.) Rosy Footman (*M. miniata* Forst.), the Grey Arches (*P. nebulosa* Hufn.) which was quite common, the Blue-bordered Carpet (*P. bicolorata* Hufn.), Iron Prominent (*N. dromedarius* L.) and Lesser Satin Moth (*T. duplaris* L.).

Other species of interest which have turned up during the year include the Stout Dart (*S. ravida* Schiff.), Great Brocade (*E. occulta* L.), Deep-brown Dart (*A. lutulenta* Schiff.) and the Merveille du jour (*G. aprilina* L.), which has been seen in very good numbers.

In a list containing some 90 species of moths, received via our Hon. Secretary, from one of his Sixth Form pupils at Brigg Grammar School A. H. Neale, is recorded "on 14th October at M.V. light a specimen of the Portland Moth (*A. praecox* L.)", This beautiful moth is always a prize; very few are reported from the County, — the last one being in 1959 at Bottesford. Other interesting species from his list were the Mullein Shark (*C. verbasci* L.) and the Dog's Tooth (*H. suasa* Schiff.) which were both seen in May.

Many pugs have been seen; among them have been the Narrow-winged (*E. nanata* Hubn.), Brindled (*E. abbreviata* Steph.), Double-striped (*G. pumilata* Hubn.), Scarce (*E. extensaria* Freyer), Angle-

barred (*E. innotata* Hufn.) and Bordered Pugs (*E. succenturiata* L.), Another interesting record came from Mr. Pilcher, who on 4th August took a specimen of the Gem (*N. obstipata* Fabr.) in the Boston area.

Altogether this has been a fairly good year with some very noteworthy additions to the County list.

In conclusion I should once more like to thank members for sending me their observations and in particular, I would like to thank Mr. J. H. Duddington, Rev. P. C. Hawker, the Rev. Canon G. Houlden, Mr. G. N. Holland, A. H. Neale, Mr. R. E. M. Pilcher and Rear Admiral A. D. Torlesse.

ARACHNOLOGY

G. W. Whatmough, M.P.S.

After a prolonged dry summer any naturalist is likely to wonder what effect it will have on his particular interest. All arthropods need water more or less frequently, even house-spiders. Drought is far from ideal for our outdoor species. The summer of 1964 should, however, have been almost perfect for saltacids (jumping-spiders) and given a reasonable winter, it will be interesting to see if in fact we do see greater numbers of zebra spiders on our walls in the summer of 1965. Actually conditions are probably never so bad for outdoor spiders as we are liable to imagine. Although they undoubtedly need fairly frequent supplies of water they can usually survive on dew. Observations on a tropical mygaleomorph spider kept as a pet for about four years has shown how ideally, outdoor species will take in water daily even though they can do without food and the fluids derived from it for weeks at a time as a necessary prelude to moulting. The mygaleomorph, fed originally on large diptera in summer and on fishermen's maggots in winter, was offered small pieces of meat from the end of the coarse fishing season in March and eventually developed a taste for it. If not sufficiently succulent, the spider has often been seen to deposit a piece of meat in her water dish, and later to drink the infusion but not to crush fluid from the soaked morsel. If neglected for a few days, the spider will quickly advertise the fact that her water supply has evaporated, by pointedly sitting in the water-dish.

The following are the highlights of the season:—

Family Gnaphosidae

Micaria pulicaria (Sund.)

The ant-mimic; found for the first time at Linwood Warren in short grass by the main path.

Family Thomisidae

Xysticus ulmi (Hahn)

A particularly attractive crab-spider plentiful at Sudbrook, near Ancaster, where it was beaten from hawthorn hedges and tall dry grass. The male is much brighter than the common *X. cristatus*.

Family Salticidae

Heliophanus cupreus (Walck.)

Found in moss on the dunes at Gibraltat Point by M. R. D. Seaward, is a new record for this Reserve and for the County.

Family Lycosidae

Pirata piraticus (Clerck)

This water-skimming wolf-spider was taken by M. R. D. Seaward at Woolsthorpe Wharf. The spider was carrying an egg-sac in which the spiderlings were almost ready to hatch.

Family Agelenidae

Argyroneta aquatica (Clerck)

In April, a female, believed to be immature, was shown to me by W. L. Young. It had been dredged from Burton Pits by David Griffiths. When seen it was in a jar of water with a small air bubble around her spinners and under her abdomen. The spider kept coming to the surface to supplement this air supply. It had not been able to construct a silken air-bell in which to discharge the tiny air bubbles. I understand that this specimen, the first to be found near Lincoln for many years, has been placed in an aquarium and was certainly still alive six months after capture. The spider is still locally abundant in the British Isles, but is undoubtedly declining in numbers.

Family Argyopidae

Cercidia prominens (Westr.)

An immature female, confidently believed to be this species, was found at Linwood a few years ago. In April this year an adult male, which proved to be unmistakeable, was taken. We can now, therefore, record it as a Lincs. species.

Family Linyphiidae

Trachynella nudipalpis (Westr.)

A rare spider in Lincs.; found at grass roots by the Coulson Road Ballast Pits, Lincoln, in February. The only previous recorded specimen was one taken by E. C. Riggall not far away at Skellingthorpe in October 1957.

Erigone longipalpis (Sund.)

A Seashore spider, fairly plentiful around the Cleethorpes and Boston areas, and locally on marshy ground inland, was taken at Gibraltar Point for the first time in September. It must have been overlooked in the past. Females are difficult to distinguish from the commoner members of the genus.

Ostearius melanopygius (O. P. C.)

A solitary male found under driftwood in dune slack; another first record for Gibraltar Point, although it has been found elsewhere on the Lincs. coast.

Microneta viaria (Bl.)

Both sexes found under paper on Laughton Common by J. H. Duddington. A new record for County Div. 5.

Lepthyphantes obscurus (Bl.)

Taken in the sweep-net at Sudbrook, near Ancaster, a new record for Div. 15.

LINCOLNSHIRE BIRD REPORT, 1964

K. Atkin, R. K. Cornwallis, M.A., M.B.O.U., and A. D. Townsend, M.B.O.U.

There are three additions to the Lincolnshire List (which now stands at 295 species). Of these one, Baird's Sandpiper, occurred in 1963 (confirmation of the record by the Rare Birds Committee having been held over) and two, Roseate Tern and Alpine Swift, in 1964.

A long list of rarities recorded in 1964 includes Leach's Petrel, Little Bittern, Bean Goose, Osprey, Hobby, Kentish Plover, Temminck's Stint, White-rumped and Pectoral Sandpipers, Avocet, Glaucous, Iceland and Sabine's Gulls, White-winged Black Tern, Hoopoe, Wryneck, Golden Oriole, Bearded Tit, Dipper, Marsh, Barred and Wood Warblers and Firecrest. There are breeding records of Quail and Crossbill, and of Ringed Plovers again breeding inland. Outstanding among many interesting recoveries of ringed birds are: a Moorhen which had reached Dorset, an unusually long journey for so sedentary a bird; a Meadow Pipit that had taken an unusual direction, being recovered in Italy; and an exceptional number of foreign recoveries of Goldfinches and Linnets. A feature of the autumn migration at Gibraltar Point was the number of sparrows seen migrating; no fewer than 1,337 House Sparrows and 181 Tree Sparrows were ringed and it is hoped that recoveries will throw some light on these unusual movements.

There are some changes in the presentation of the Report this year. In place of separate narratives from the stations where migration is regularly recorded there is a combined account of migration in the county. It is hoped that this will both be more readable and also show relationships between movements on Humberside, at Gibraltar Point, and inland. It has also been decided in order to save costs, to attach observers' initials only to records of species occurring on the Rare Birds Committee's list and as additions to the County List. The person responsible for it is, of course, an essential part of any record and a

new system of cross referencing the original records, which remain in the files of the Lincolnshire Naturalists' Union, will make them available for verification to future research workers.

The conventions adopted in previous reports are repeated: i.e., B.O.U. *Checklist* order with numbers in that list as references; where a number is not shown this indicates that the species has been added to the British list since 1951; all records to be taken as of a single bird unless otherwise stated; BPBO — Bardney Ponds Observatory; GP — Gibraltar Point; TBO — Tetney Bird Observatory; H-W Ref — Humber Wildfowl Refuge; S.F. — Sewage Farm; G.P. — Gravel Pits; CBC — Cambridge Bird Club Report (obtainable, price 5 -; from G.M.S. Easy, "Braemar", Landbeach Road, Milton, Cambs.)

In addition to those in the list the following occurred in the county in 1964 (breeding species in italics): *Little Grebe*, *Mute Swan*, *Red-legged Partridge*, *Partridge*, *Pheasant*, *Moorhen*, *Coot*, Common Sandpiper, *Redshank*, Herring Gull, *Stock Dove*, *Wood Pigeon*, *Cuckoo*, *Little Owl*, *Tawny Owl*, *Swift*, *Great Spotted Woodpecker*, *Skylark*, *House Martin*, *Carrion Crow*, *Rook*, *Jackdaw*, *Magpie*, *Jay*, *Great Tit*, *Blue Tit*, *Coal Tit*, *Marsh Tit*, *Willow Tit*, *Long-tailed Tit*, *Tree Creeper*, *Wren*, *Mistle Thrush*, *Song Thrush*, *Blackbird*, *Wheatear*, *Robin*, *Reed Warbler*, *Sedge Warbler*, *Garden Warbler*, *Whitethroat*, *Lesser Whitethroat*, *Willow Warbler*, *Chiffchaff*, *Goldcrest*, *Spotted Flycatcher*, *Dunnock*, *Meadow Pipit*, *Starling*, *Greenfinch*, *Goldfinch*, *Linnet*, *Bullfinch*, *Chaffinch*, Brambling, *Yellowhammer*, *Corn Bunting*, *Reed Bunting*.

MIGRATION IN LINCOLNSHIRE, 1964

January. Small numbers of Carrion Crows, Rooks, Wood Pigeons, Skylarks and Linnets moved S. at Gibraltar Point on 1st and several Fieldfares flew E. at Tetney. Fieldfares were again a feature on 12th when large numbers were present along the Gibraltar Point dunes and again on 18th when many flew W. during the evening.

February. A small southerly movement of Reed Buntings occurred at Gibraltar Point on 2nd and on 9th a moderate northerly passage of Great Black-backed Gulls, Herring Gulls and Scoters. There was another influx of Reed Buntings on 15th and an unidentified crake was flushed from the marsh on 16th. A day-long passage of Lapwings took place on 25th, a peak of 600 occurring at Bardney at the same time.

March. Both Whooper and Bewick's Swans moved S. at Tetney, Theddlethorpe and Skegness early in the month; large numbers of Oystercatchers, Grey Plovers and Dunlins were present at Gibraltar Point. Several Dunlins also occurred at Bardney where a Green Sandpiper flew E. A Carrion Crow flew E. at Gibraltar Point on 7th and many Lapwings moved S.E. on 8th. Three Black Redstarts were recorded on 21st and next day a Stonechat and a Wheatear at

Boston. Gibraltar Point had a heavy passage of Chaffinches on 25th, the movement including Linnets and the unusually large number of 70 Blue Tits, while Bardney had a peak of 50 Reed Buntings. An influx of Blackbirds took place at Tetney and Gibraltar Point on 26th and both stations recorded the first Whimbrels; there was also a Chiffchaff at Tetney. Migrants on 29th were a Wheatear at Tetney and at Gibraltar Point a Waxwing, a Chiffchaff and a Firecrest and on 31st seven Long-eared Owls and two Waxwings.

April. Blue Tits were again numerous at Gibraltar Point on 1st, a Black Redstart on 2nd and an Avocet on 4th. Migrants on 5th included a Sparrow Hawk and two Ring Ouzels, and a Black Redstart was present at Bardney. A small influx of Goldcrests occurred at Gibraltar Point on 6th and on 7th at Tetney. A Great Northern Diver more Ring Ouzels and Woodcock were seen at Gibraltar Point on 7th and next day at Bardney, Meadow Pipits were moving E. and a Yellow Wagtail flew S.W. A Blackcap had arrived at Tetney on 9th and a Swallow and Sparrow Hawk at Gibraltar Point. Southerly winds on 11th resulted in Willow Warblers and Blackcaps at Gibraltar Point and at Tetney a White Wagtail and a Ring Ouzel. Swallows, House and Sand Martins had arrived at Bardney by 14th; a Common Tern on 16th and on 18th two Little Ringed Plovers, while Gibraltar Point had the first Little Terns and Turtle Doves. With S.E. winds on 19th all three stations received a share of migrants. Tetney recorded Ring Ouzels, Sedge Warblers, Yellow Wagtails and a Hawfinch. Bardney had a peak of Yellow Wagtails, Reed Warblers and several Whitethroats, while migrants at Gibraltar Point included two Nightingales, Garden Warblers, Ring Ouzels, Tree Pipits and three Lapland Buntings. A Marsh Harrier flew over Bardney on 23rd and an Alpine Swift was seen at Baumber. A Grasshopper Warbler, Redstart and Common Sandpiper occurred at Gibraltar Point on 25th and next day Tetney recorded a peak of Whimbrels; Turtle Doves were moving S. at Gibraltar Point and the first Sandwich Terns had arrived. Turtle Doves had appeared at Bardney by 27th together with a peak of Sand Martins; three Swifts were present on 29th.

May. A Montagu's Harrier was present at Gibraltar Point on 2nd and next day a Marsh Harrier flew out to sea over Huttoft bank. Turtle Doves and Swallows were moving S.W. all day at Tetney and Gibraltar Point. Swifts were recorded at both stations and 70 flew W. at Bardney. Swifts and Turtle Doves were flying S.W. at Tetney and Gibraltar Point throughout 9th and 10th, when other migrants at Tetney were Cuckoos, Wheatears, Whinchats, Spotted Flycatchers, Yellow Wagtails, Whitethroats and Reed Warbler. A Temminck's Stint appeared at Bardney on 14th and a Quail was flushed from the nearby fens. A Wood Warbler was recorded at Gibraltar Point and a Garganey at Huttoft. A Wood Sandpiper, five Ruffs and a large Hirundine passage occurred at Gibraltar Point on 18th; and next day 150 House Martins flew S.W., as did 400 at Huttoft on 22nd. A Little Bittern

was present at the Chapel St. Leonard's pits on 21st. There was an Avocet at Tetney on 23rd and a Little Ringed Plover at Bardney on 24th and three Black Terns flew E. A Hobby and two Roseate Terns were recorded at Gibraltar Point on 29th and next day a Golden Oriole at Friskney Decoy. Two Garganey and four Oystercatchers had arrived at Bardney by 31st.

June. A Black Tern, Spotted Redshank and Greenshank occurred at Bardney on 1st and a Wood Sandpiper and a Black Redstart the following day. Lapwings were moving N.W. at Tetney on 5th, and Turtle Doves were flying S.W. at Gibraltar Point and Bardney. A Garganey was recorded at Tetney on 7th, a Hobby was seen at Wisbech sewage farm, and next day four Oystercatchers arrived at Bardney from the E. A Marsh Warbler was trapped at Bardney on 14th and Lapwings were flying N.W. at Tetney and S.W. at Gibraltar Point; Marsh and Montagu's Harriers were seen over Wainfleet Marsh. Lapwings were moving N. at Gibraltar Point on 18th and at Bardney on 21st. Swifts were moving S.W. at Gibraltar Point 26th — 28th and small peaks of Green Sandpipers and Little Ringed Plovers occurred at Bardney.

July. Swifts were again moving W. at Gibraltar Point for the first few days of the month. A Black Tern arrived at Bardney and on 5th 13 Common Terns flew N.W. Tetney had a southerly passage of Sandwich Terns on 8th, and on 11th peaks of Common Sandpipers and Dunlins and on 13th a sharp rise in the numbers of Whimbrel and Knot, while a Great Spotted Woodpecker and a Willow Warbler occurred at Bardney, where for the next few days Black-headed Gulls were flying S.E. The Swift passage was resumed down the coast from 16th, large numbers being recorded at Huttoft Bank and Gibraltar Point. A Golden Plover flew N.W. at Bardney and the first Snipe of the autumn was recorded; next day a Blackcap and a peak of Ruffs. An adult Sabine's Gull was seen near Gibraltar Point on 19th and 60 Manx Shearwaters flew N.

August. Swifts and Sand Martins were moving S.W. at Gibraltar Point on 1st, and small numbers of Willow Warblers were recorded. A passage of Swifts and a Little Stint occurred at Tetney and next day a movement of Whimbrels. Small numbers of Willow Warblers had arrived at Gibraltar Point on 3rd, and also at Bardney where several Turtle Doves flew S.W., a Little Tern was present on 4th and a White-winged Black Tern at Tetney on 5th. With overcast skies on 7th there was a fall of Willow Warblers and Whitethroats at Gibraltar Point and of Willow Warblers at Bardney. Spotted Redshanks were recorded at both stations on 9th and at Gibraltar Point large numbers of terns were moving S. A small fall of migrants at Gibraltar Point on 15th included several Pied Flycatchers and a Barred Warbler; Pied Flycatchers were recorded next day at Tetney. A large southerly movement of Swallows commenced down the coast on 22nd and continued until

30th. Peaks of Spotted Redshanks, Arctic Skuas and Sandwich Terns occurred at Tetney on 24th. Yellow Wagtails moved S.W. at Gibraltar Point and Bardney on 25th. Waders reached fresh peaks next day at all three stations. Fresh S.E. winds on 27th brought a large fall of nocturnal migrants at Gibraltar Point, Willow Warblers and Whitethroats predominating with smaller numbers of Blue Tits, Redstarts, Whinchats, Wheatears, Reed Warblers, Sedge Warblers, Garden Warblers, Pied Flycatchers, Chiffchaff and a Peregrine; Wheatears were numerous at Tetney next day. A Whinchat and peaks of Sedge Warblers and Blue Tits occurred at Bardney on 30th, while at Gibraltar Point Reed Buntings and Meadow Pipits were flying S.

September. Four Roseate Terns and a Great Skua were recorded at Gibraltar Point on 1st and a peak of 60 Pied Wagtails at Bardney. Next day small falls of Pied Flycatchers occurred at both coastal stations. East winds and mist on 3rd produced a further peak of Pied Flycatchers at Gibraltar Point and a Barred Warbler and Wryneck were present. Many Swallows flew S.W. on 8th and 1,500 were recorded at Bardney. A Great Spotted Woodpecker at Tetney on 13th and at Gibraltar Point several Manx Shearwaters and 50 Gannets; a few Kestrels flew S.W. until 18th and on 15th a S.W. passage of a few Siskins and Redpolls. This passage further increased on 17th reaching a peak of 250 Redpolls on 19th. Curlew Sandpipers, Little Ringed Plovers and Black-tailed Godwits occurred at Tetney and Bardney during this period. A Buzzard, Ring Ouzel and the first of the Pinkfooted Geese arrived at Gibraltar Point on 20th. Lapwings were moving N.W. at Tetney 24th — 27th while at Gibraltar Point they were arriving from E. Pied Flycatchers arrived at Tetney and Gibraltar Point on 26th and for the next few days many Linnets, Reed Buntings, House and Tree Sparrows were flying S.W. at Gibraltar Point and a Redpoll, Reed Buntings and Meadow Pipits and Goldfinches at Bardney and Tetney. There was a Buzzard at Tetney on 28th by which time the numbers of Pinkfeet at Gibraltar Point had risen to 700.

October. Four Little Stints, Arctic Tern and an influx of Robins occurred at Bardney on 1st. Robins also occurred at Tetney with a few Redstarts, Great Grey Shrike and a N.W. movement of Lapwings and Starlings. A Great Spotted Woodpecker was present at Gibraltar Point next day with newly arrived Blackbirds, Song Thrushes, Spotted Flycatcher, Blue Tits and a Black Redstart. A peak of Blue Tits occurred at Bardney and several House Martins flew S.W. while Tetney received Redwings, Ring Ouzel, Goldcrests, Redstarts, Robins and Garden Warblers. There was a gradual build up of these migrants at the coastal stations during the next few days, new arrivals including a Lapland Bunting at Tetney and a Stonechat and three Sparrow Hawks at Gibraltar Point. Large numbers of House and Tree Sparrows started moving S.W. at Gibraltar Point on 9th together with Yellow Wagtails and Skylarks and from 11th migrants at Bardney

included Meadow Pipits, Chaffinches, Reed Buntings, Wrens, Blue Tits, Swallows, Dunnocks, Linnets, a peak of 300 House Sparrows, six Little Stints and 12 Bearded Tits which flew W. when disturbed. The coastal stations had fresh arrivals of Blackbirds, Redwings, Fieldfares, Starlings, Lapwings, Skylarks, Blue Tits, Ring Ouzels and Bramblings. Lapwings and Starlings were still moving N.W. the following day and a Sparrow Hawk and many Robins were recorded at Bardney. There was a Black Redstart, a Barnacle Goose and a peak of 5,000 Pinkfeet at Gibraltar Point on 22nd; a White-rumped Sandpiper occurred at Wisbech sewage farm on 24th and 10 Woodcock were present at Gibraltar Point on 25th and four Bearded Tits on 31st.

November. Thirteen Hooded Crows were recorded at Gibraltar Point on 2nd and next day at Tetney a Little Auk and Great Northern Diver. The passage of House Sparrows (which had continued almost unceasingly since early October) included on 7th many Skylarks, Meadow Pipits, Lapwings, Starlings and a flock of 120 Collared Doves. A Hen Harrier was present on the reserve on 8th and at Bardney a Jack Snipe flew W. A large southerly passage of gulls took place at Gibraltar Point on 15th, a Waxwing on 21st and small numbers of Fieldfares arrived at the coastal stations until 28th and at Tetney several thousand Woodpigeons flew W. and a late Yellow Wagtail was recorded at Bardney on 29th.

December. 5,000 Fieldfares were feeding on the Buckthorn at Gibraltar Point on 6th and wildfowl flying S. on 12th included Mallard, Teal, Pintails, Shoveler and an Eider, while Snow Buntings reached a peak of 500. The Yellow Wagtail was again present at Bardney on 20th and was last seen on 27th. A few Lapwings, Skylarks, Linnets and Goldfinches moved S. at Gibraltar Point on 25th and 100 Yellowhammers were counted on the reserve. A Merlin was seen on 28th and a Peregrine on 30th. On the last day of the year many Greenfinches, Linnets, Goldfinches, Yellowhammers, Reed Buntings and House Sparrows flew S.W.

GIBRALTAR POINT OBSERVATORY RINGING PROGRESS

	1949—1963	1964	Grand Total
Gannet	1		1
Shag	1		1
Wigeon	1		1
Sheld Duck ...	2		2
Sparrow Hawk ...	30		30
Merlin	1		1
Kestrel	5		5
Pheasant		1	1
Red-legged Partridge ...	2		2
Partridge ...	18	4	22
Water Rail ...	3	2	5
Corncrake ...	1		1
Moorhen ...	3		3
Coot	1		1
Oystercatcher ...	2	11	13
Lapwing	17		17
Ringed Plover ...	35	1	36
Little Ringed Plover ...	1		1

	1949—1963	1964	Grand Total
Turnstone	2		2
Woodcock	2		2
Common Sandpiper	1		1
Redshank	3		3
Knot	1	1	2
Dunlin	9	6	15
Sanderling	8		8
Common Gull	1		1
Black-headed Gull	38		38
Little Tern	7	1	8
Stock Dove	29		29
Woodpigeon	40	1	41
Collared Dove	2		2
Turtle Dove	5	7	12
Cuckoo	96	10	106
Barn Owl	8		8
Little Owl	8		8
Long-eared Owl	4		4
Short-eared Owl	5		5
Nightjar	2		2
Kingfisher	1		1
Green Woodpecker	3		3
Great Spotted Woodpecker	13	1	14
Wryneck	10	1	11
Skylark	23	6	29
Swallow	432	292	724
House Martin	1	2	3
Sand Martin	2	3	5
Rook	1		1
Jackdaw	3	2	5
Magpie	45		45
Jay	1		1
Great Tit	252	11	263
Blue Tit	805	43	848
Coal Tit	37		37
Marsh Tit	4		4
Willow Tit	10	1	11
Long-tailed Tit	132	11	143
Bearded Tit	2		2
Tree Creeper	7		7
Wren	406	11	417
Mistle Thrush	55	2	57
Fieldfare	37	8	45
Song Thrush	846	93	939
Redwing	131	11	142
Ring Ouzel	17		17
Blackbird	3526	186	3712
Wheatear	58	4	62
Stonechat	8	1	9
Whinchat	63	33	96
Redstart	599	31	630
Black Redstart	6	1	7
Nightingale	5		5
Bluethroat	5		5
Robin	697	66	763
Grasshopper Warbler	3		3
Reed Warbler	21	9	30
Sedge Warbler	64	6	70
Icterine Warbler	7		7
Blackcap	107	27	134
Barred Warbler	14	2	16
Garden Warbler	263	21	284
Whitethroat	2502	205	2707
Lesser Whitethroat	140	29	169
*Rufous Warbler	1		1
Willow Warbler	2466	148	2614
Greenish Warbler	1		1
Chiffchaff	123	4	127
Wood Warbler	14		14
Yellow-browed Warbler	4		4
Goldcrest	80	16	96
Firecrest	3		3
Spotted Flycatcher	176	7	183
Pied Flycatcher	586	52	638
Red-breasted Flycatcher	4		4
Dunnock	1449	276	1725
Meadow Pipit	244	33	277
Tree Pipit	16		16
Rock Pipit	2	1	3
Pied Wagtail	11	3	14
Yellow Wagtail	17		17
Great Grey Shrike	2		2
Red-backed Shrike	2		2
Starling	394	96	490
Rose-coloured Starling	1		1
Hawfinch	1		1
Greenfinch	387	152	639
Goldfinch	105	51	156
Siskin	13		13
Linnet	302	78	380
Twite	9	7	16
Redpoll	49	13	62
Bullfinch	14	7	21
Crossbill	5		5
Chaffinch	337	30	367
Brambling	11		11
Yellowhammer	124	45	169
Corn Bunting		3	3
Reed Bunting	646	322	968
Snow Bunting	116	5	121
House Sparrow	973	1337	2310
Tree Sparrow	381	181	562

*Ringed at Butlin's Camp, Skegness.

ANNUAL RECORD

1949 :	1,566 of 63 species	1957 :	824 of 47 species
1950 :	1,122 „ 60 „	1958 :	1,289 „ 53 „
1951 :	1,150 „ 49 „	1959 :	1,545 „ 52 „
1952 :	1,672 „ 59 „	1960 :	1,132 „ 47 „
1953 :	1,096 „ 51 „	1961 :	3,044 „ 54 „
1954 :	1,337 „ 52 „	1962 :	2,123 „ 62 „
1955 :	755 „ 43 „	1963 :	1,482 „ 59 „
1956 :	791 „ 43 „	1964 :	4,031 „ 64 „

1949—1964 : 24,959 of 120 species

SELECTED RINGING RECOVERIES

m — male f — female n — nestling
f.g — full-grown juv — juvenile ad — adult
1st w — first winter

Mallard

f.g., f., Deeping St. Nicholas, 15.10.60 — 10.10.63, Ovre Soppero, **Swedish Lapland.**

Wigeon

f.g., m., Deeping St. James, 12.2.57 — 15.9.63, Verenda, Novgorod, **U.S.S.R.**

f.g., f, Deeping St. James, 21.10.61 — —.8.63, Alvsbyn, Norrbotten, **Sweden.**

Shoveler

ad, Abberton, 10.6.63 — 29.11.63, Barton-on-Humber.

Pochard

f.g., m., Deeping St. James, 9.12.58 — 22.3.62, Kolobrzeg, Koszalin, **Poland.**

Sheld Duck

n, Sutton Bridge, 21.7.62 — 26.12.63, Limavady, Londonderry.

Moorhen

1st, w, Sutton Bridge, 1.9.61 — 21.1.63, Sturminster Newton, Dorset.

Ringed Plover

n, Norderoog, Frisland Isle, **Germany,** 11.6.63 — 17.8.63, Sutton Bridge.

n, Skegness, 15.7.61 — 14.11.63, Westport Bay, Mayo.

Snipe

f.g., BPBO, 14.8.63 — 20.10.64, Clipstone, Notts.

Dunlin

juv, BPBO, 27.8.64	15.9.64, Cacia, Beira Litoral, **Portugal.**
juv, Dawesmere, 29.8.61	19.5.63, Severodvinsk, Arkhangel **U.S.S.R.**
ad, Ottenby, **Sweden,** 8.8.61	3.9.62, Sobieszewo, Gdansk, **Poland.**
	16.11.63, Benington.

Sanderling

f.g., Revtangen, **Norway,** 17.9.59	19.9.63, Cleethorpes.

Ruff

f.g., m, Sutton Bridge, 14.10.61	19.11.63, Silla, Valencia, **Spain.**
f.g., f, Sutton Bridge, 14.10.62	3.9.63, Ponte a Boriano, Arezzo, **Italy.**

Great Black-backed Gull

n, Kharlov Island, Murmansk, **U.S.S.R.,** 27.6.60	1.1.63, Mablethorpe.

Black-headed Gull

n, Pyewipe, Lincoln, 15.6.64	24.8.64, Rhydyfelin, Aberystwyth, Cardigan.
n, Pyewipe, Lincoln, 26.6.64.	8.11.64, Withens Res., Hebden Bridge, Yorks.
n, Pyewipe, Lincoln, 26.6.64,	5.8.64, Rudyard Lake, Leek, Staffs.

Guillemot

n, Puffin Island, Anglesey, 30.6.62	11.1.63, Chapel St. Leonards.

Swift

ad, Marston, 15.6.64	23.8.64, Bollullos, Del Condado, **Spain.**

Of a total of 646 Swifts ringed at Marston in 1963, 72 were retrapped there during 1964.

Swallow

ad, Woumen, **Belgium,** 11.5.63	1.6.63, Tattershall.
ad, Ancaster, 17.9.63	25.9.64, Northfleet, Kent.
juv, Ancaster, 17.9.63	12.5.64, Dromin, Drogheda, Co. Louth.
juv, Scredington, 19.8.62	18.7.64, Penistone, Yorks.

House Martin

ad, West Wickham, Bucks, 27.5.62	2.7.63, Middle Rasen.

Sand Martin

juv, Romford, Essex, 31.7.58	28.7.64, Biscathorpe.
ad, Chichester, Sussex, 29.8.63	28.7.64, Biscathorpe.
ad, Biscathorpe, 28.7.64	29.8.64, Wiggenhall, Kings Lynn, Norfolk.
juv, BPBO, 21.8.64	2.9.64, Wiggenhall, Kings Lynn, Norfolk.
juv, BPBO, 21.8.64	28.8.64, Pagham, Sussex.
juv, BPBO, 22.8.64	29.8.64, Pagham, Sussex.
f.g., Ancaster, 3.8.62	9.7.63 and 16.7.64, Wittering, Northants.
juv, Ancaster, 16.7.64	3.8.64, Wittering, Northants.
f.g., Ancaster, 9.8.62	4.7.64, Thetford, Norfolk.
f.g., Ancaster, 15.8.62	1.8.64, Aberham, Notts.
juv, Ancaster, 14.7.64	19.8.64, La Chapelle, Loire Atlantique, **France.**

Rook

n, Epworth, 4.5.63	10.11.63, Ribston, Yorks.

Blackbird

1st, w, GP, 5.11.61	25.6.64, Gronliden, Gryt, **Sweden.**
1st, w, GP, 5.11.61	29.3.64, Hole, Rogaland, **Norway.**
ad, m, GP, 27.10.62	15.4.64, Lovstod, Akerhus, **Norway.**
ad, m, Friskney Decoy, 1.3.64	24.5.64, Vastra Lagno, Ljustero Island, **Sweden.**

Robin

f.g., Holme, Norfolk, 6.11.63	30.10.64, GP.

Reed Warbler

ad, Fishtoft, 1.8.64	28.8.64, Chichester, Sussex.
f.g., BPBO, 27.7.64	14.8.64, St. Ives, Hunts.

Whitethroat

f.g., Sutton Bridge, 20.9.61	19.9.63, Cascais-Estremadura, **Portugal.**
ad, GP, 24.9.62	27.9.64, Agueda, Beira Litoral, **Portugal.**
juv, Fishtoft, 8.8.64	24.8.64, Coumont, **France.**

Meadow Pipit

f.g., GP, 7.9.64	21.10.64, Nami, Terni, **Italy.**

Pied Wagtail

f.g., m, Ewhurst, Surrey, 26.1.62	24.9.63, Blankney.

Starling

f.g., Sleaford, 31.12.61	—.9.63, Eie, Flekkefjord, **Norway.**
ad, m, Sleaford, 3.1.62	20.10.64, Lisseuiegie, West Flanders, **Belgium.**
ad, f, New York, 23.2.63	23.5.64, Rudnyo, Smallnska, **U.S.S.R.**
ad, m, Lincoln, 12.11.60	8.9.64, Gedney Drove End.
juv, Ullerup, Amager, **Denmark** 28.8.64	18.11.64, Northorpe.
juv, Kaliningrad, **U.S.S.R.,** 7.7.60	19.12.63, Fishtoft.

Goldfinch

juv, Sutton Bridge, 3.8.62	5.1.63, Rouvray, Eure-et-Loire, **France.**
ad, f, Welton, 17.9.63	—.2.64, Corby, Northants.
ad, GP, 10.5.64	16.11.64, Biarritz, **France.**
juv, GP, 7.10.64	2.11.64, Meslin l'Evêgue, **Belgium.**

Linnet

ad, m, Aincile, Basses Pyrenees, **France,** 18.10.62	2.6.63, Ingoldmells.
juv, Fishtoft, 8.8.63	10.11.64, Biscorrosse-Plage, Landres, **France.**
ad, f, Fishtoft, 26.5.64	26.10.64, Guadiaro, Cadiz, **Spain.**
juv, GP, 12.7.64	25.11.64, Castets-en-Dorthe, Gironde, **France.**

Twite

f.g., f. GP, 28.10.61	30.10.63, Neerbeke, East Flanders, **Belgium.**

Brambling

f.g., m, Uccle, Bruxelles, **Belgium,** 27.2.60	13.3.63, Boston.

Yellowhammer

f.g., m, Bradwell, Essex B.O., 31.3.61	21.4.63, Donington.

House Sparrow

1st, w, f, GP, 1.11.63	8.3.64, Sandall, Doncaster, Yorks.
1st, w, f, GP, 11.10.63	13.3.64, Scarborough, Yorks.

GENERAL BIRD REPORT

The following have contributed observations:

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F. T. Baker
A. A. Bell
A. Blackburn
N. Booth
S. Van den Bos
F. Brewster
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Cambridge Bird Club
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Carre's Grammar School
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C. Colebrook
Nature Conservancy
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L. Cornwallis
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A. Dobbs
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J. A. Galletly
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P. Hammerton
K. Herrick
P. Herrick
R. Holmes
D. Holyoak
L. Hurst
G. Houlden
E. Howsam
A. Kirk
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G. F. Leachman
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E. Thompson
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T. W. Wallis
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Wash Wader Ringing Group
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C. E. Wilkinson
R. B. Wilkinson
K. G. Wilson
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1. **Black-throated Diver.** GP, 19/9.

2. **Great Northern Diver.** Buck Beck, Humberstone, 15/11· TBO, 6/1; 3/11. GP, 7/4; 30/5.

4. Red-throated Diver. TBO, 18/1; 3 dead, 25/1; 2, 21/11. Huttoft Bank, 15/10; 8/11; 4, 15/11. BPBO, dead, 29/3. Kirkby-on-Bain, 11/4. GP, 5, 3/1; 2/2; 3, 15/2; 10/4; 16/5; 15/9; 18/9; 25/10. Boston Point. 15/11.

5. Great Crested Grebe. *Breeding records:* Barton-on-Humber; Killingholme; Burton G.P.; Kirkby-on-Bain; Sleaford pit; Langtoft; Tallington G.P.

6. Red-necked Grebe. Sutton-on-Sea pit, 27—29/3. Hemingby, found on road, 1/11, released Chapel pit.

7. Slavonian Grebe. TBO, 25/1.

12. Leach's Petrel. Benington, 6/12.

16. Manx Shearwater. Anderby Creek, 3/10. GP, 60 flying south, 19/7; 4, 27/7; 2, 28/7; 3, 1/8; 1/9; 8, 13/9; 2, 15/9.

26. Fulmar. Huttoft Bank, 14/5; 1/6; 2, 5/8; 4, 8/8; 2, 15/8; 16/8; 5, 18/8. Chapel Point, 4, 13/8; 6, 1/9. GP, 2, 19/7; 2, 28/7; 2, 3/8; 24/8; 25/8; 1/9; 6/9. Benington, 3 dead, 22/3.

27. Gannet. Huttoft Bank, *max:* 17, 17/9. GP, *max:* 50, 13/9.

29. Shag. TBO, 29/10. GP, 2, 2/1; 3, 8/9. *Inland:* Hartsholme G.P., Lincoln, 23/9.

30. Heron. Occupied nests: Donna Nook, 1; Brocklesby, 1; Muckton, 4; Willoughby, 20; Wharton, 12; Fiskerton, 1; Doddington, 9; Troy Wood, 44; Evedon Wood, 2; Deeping 20. GP.

37. Little Bittern. Chapel pit, 21—26/5 (As, *et al*). (*see British Birds, Vol.* 58).

38. Bittern. Barton-on-Humber, 'booming' 11/4. Huttoft pit, 4/4.

45. Mallard. *Max:* TBO, 240, 18/8. Brocklesby, 600, Nov. Huttoft pit, 250, 14/8. GP, 300, 16/2. Holbeach, 600, 29/11.

46. Teal. *Max:* H-W Ref., 1,000, 9/10. TBO, 100, 17/8. Brocklesby, 150, Oct. BPBO, 200, 23/10. GP, 100, 7/11. Grantham S.F., 250, 15/2. Holbeach, 150, 8/3. A pair bred Brigg Ponds.

47. Garganey. TBO, 7/6; 15/7; 20/7; 7/8. Huttoft pit, 15/3; 9/5; 3, 14/5; 23/5; 2/8; 2, 11/8; 17/9. Chapel pit, 25/4. BPBO, 2, 31/5; 23/7; 2, 24/7; 18/8; 27/8. Friskney Marsh, 3, 8/4. Grantham S.F., 8/8.

49. Gadwall. Scawby, 4, 29/3; 2, 10/4. Huttoft pit, 2, 12/4; 4, 2/8; 8/8; 30/8.

50. Wigeon. *Max:* TBO, 550, 1/3. GP, 1,000, 3/1. Grantham S.F., 120, 19/1. Boston Point, 150, 26/1. Holbeach, 500, 27/12.

52. Pintail. H-W Ref., 26/9—23/12, *max:* 24, 21/10. TBO, 24, 1/3; 2, 7/3; 2, 4/9. Brocklesby, *max:* 90, 15/11. Huttoft pit, 4, 21/3; 2/8; 11/8; 3, 30/8. Huttoft Bank, 3, 4/10. BPBO, 3, 5/1; 2, 11/1; 23/2; 2, 1/3; 19/4; 13/7. Skegness pit, 7/6. GP, 3/1; 5, 27/3; 10/5; 6, 13/9; 3, 4/10; 3, 21/11; 2, 13/12. Holbeach, 3, 8/3; 26/4.

53. Shoveler. *Breeding records:* Huttoft pit; BPBO; Pyewipe marsh.

55. Scaup. H-W Ref., 6, 20/10. East Halton, 15/3. Huttoft pit, 2/1; 2, 6/1; 9/2. Holbeach, 3, 26/4.

56. Tufted Duck. *Breeding records:* Kirkby-on-Bain, 1 pair. Burton G.P., 2 pairs. Pyewipe marsh, 1 pair. *Winter max:* Burton G.P., 68, 2/2. GP.

57. Pochard. *Breeding records:* Burton G.P., 2 pairs. BPBO, 1 pair. *Winter max:* Killingholme, 115, 23/2. Brocklesby, 60, 31/1. Burton G.P., 92, 9/12. BPBO, 50, 13/12. Tallington G.P., 120, 8/3. GP.

60. Goldeneye. Numerous winter records from H-W Ref., TBO, Huttoft pit, Hartsholme G.P., BPBO, GP, Boston Point, Tallington, Holbeach.

61. Long-tailed Duck. TBO, 8, 23/1; 4, 8/4. GP, 3/1.

62. Velvet Scoter. TBO, 7/11. GP, 26/1; 3, 21/3; 29/3; 9/4.

64. Scoter. *Inland records:* Burton G.P., 22/3. BPBO, 19/1; 17/8. Tallington G.P., 8, 12/1. Wisbech S.F., 3, 12/1. GP.

67. Eider. TBO, 6, 1/3; 4, 16/8; 5, 20/8; 20, 2/11. Huttoft Bank, 6—14/5; 17/10. GP, 1/1—2/2, max. 10, 3/1; 18/5; 2, 19/5; 12/7; 26/7; 8—9/8; 5/12; 12/12. Boston Point, 13/2.

69. Red-breasted Merganser. TBO, 3, 29/3; 5/4; 7/4; 24/9; 7/11. Huttoft Bank, 7, 3/11; 2, 8/11; 15/11. GP, 12/1; 2, 22/3; 26/3; 2, 9/4; 5, 8/11; 14/11. Boston Point, 26/1; 21/2. Wisbech S.F., 16/2.

70. Goosander. Huttoft Bank, 6/1. GP, 1/3.

73. Sheld Duck. *Inland Records:* BPBO, 5, 11/1; 24/9; 8/11; 9/12; 1 pair bred. Kirkby-on-Bain, 1 pair bred. Grantham S.F., 2, 1/5; 30/6. *Coastal max:* TBO, 200, 26/12. GP, 200, 15/10. Holbeach, 900, 29/11.

75. Grey Lag Goose. GP, small numbers, 17—26/9, 17—25/10 and 19—21/11, max. 13, 19/9.

76. White-fronted Goose. TBO, up to 10, 1/1—2/2. Boston Point, 2, 22/3.

78a. Bean Goose. GP, 5, 1/11 and 21/11.

78b. Pink-footed Goose. *North-east Lincolnshire:* H-W Ref., 47, 13/9; 6,000, 9/10. *North-west Wash:* GP, 27, 17/5; 24, 17/9; max. 5,000, 22/10 and 30/11. *South-west Wash:* Holbeach, 26/4; max. 1,600, 29/11.

80. Brent Goose. TBO, 12, 19/1. Saltfleetby, 3, 29/3. GP, small numbers to 31/3, max. 35, 8/3. Up to 42, 21—24/10; 4, 21/12; 20/12. Benington, max. 1,000, 22/3. Boston, 300, 15/11. Holbeach, 600, 29/11.

81. Barnacle Goose. GP, 6, 15/1; 22/10.

82. Canada Goose. Huttoft pit, 2, 6/6. Burton G.P., a pair bred unsuccessfully. GP, 11/4. Grimsthorpe, max. 102, 2/2.

85. Whooper Swan. H-W Ref., 14, 17/12; 10, 29/12. Killingholme, 5, 2/1; 6, 19/1; 16, 26/1; 2, 2/2. TBO, 14, 1/3. Saxilby pit, 23/2. Pyewipe marsh, 4, 8/2. Hartsholme G.P., 15, 5/3. BPBO, 15/3. GP, 49, 3/3. Wainfleet, up to 64, 2—15/3. Friskney marsh, 11, 5/3; 34, 8/3; 28, 11/3. Friskney Decoy, 9 flying N. 22/3. Grantham S.F., 24/10. Ancaster, 27/10.

86. Bewick's Swan. Barton Haven, 16, 22/3. Killingholme, 32, 5/1; 19/1; 17, 16/2; 7, 23/2. R. Humber, 50, 15/3. Corringham Scroggs, 4, 16/2. Croxby ponds, 93 flew N.W. 3/3. Huttoft pit, 23/2; 31, 8/3; up to 13, 21/3—4/4. Chapel pit, 7, 31/3. Burton G.P., 4, 7/1—16/2. Saxilby pit, 4, 23/12; 4, 23/2. Harmston low fields, 23/2. BPBO, 10, 7/3. GP, 9/2; 8, 1/3; 10/4. Friskney marsh, 19, 27/3—5/4. Boston Point, 38, 2/1. Holbeach, 2, 8/3.

91. Buzzard. Bigby, 11/10; 7/11. TBO, 28/9. Lincoln, 12/11. GP, 30/8; 20/9. Friskney Decoy, 30/8. Skillington, 20/10.

93. Sparrow Hawk. Limber, 20/10. Welton-le-Wold, 28/7. Huttoft Bank, 10/5; 23/10. BPBO, 18/10. GP, 5/4; 9—10/4; 2—3/5; 19/7; 21/7; 3, 4/10; 18/10; 23/10.

99. Marsh Harrier. TBO, 7/6. Huttoft Bank, 2, 3/5. GP, 26—29/3; 18—21/5; 3, 23/5; 15/6; 2, 17/6; 1—2, 22—27/8; 10/9; 13/9; 20/9. *Inland records:* Broxholme, 25/6 (unusual date). BPBO, 23/4.

100. Hen Harrier. TBO, 1—2, 1/1—12/2. GP, 3, 19/5; 20/5. Singles, Oct. and Nov. Grimsthorpe, 13/1.

102. Montagu's Harrier. GP, up to 4, 2/5—24/6. Friskney marsh, 17/8.

103. Osprey. Croxby ponds, 22—28/5.

104. Hobby. GP, 29/5. Wisbech S.F., 7/6.

105. Peregrine. GP, 31/5; 27/8; 30/12. Friskney Decoy, 10/6.

107. Merlin. TBO, 8/2. GP, 17/5; 7/10; 2/11; 7/11; 28/12. Grantham S.F., 8/8.

110. Kestrel. A census of birds during the breeding season suggested a slight recovery especially in central Lincolnshire. *Coastal passage:* TBO, max. 8, 20/8 and 25/8. Huttoft pit, 7, 2/8. GP, max. 7, 18—19/9.

117. Quail. Limber, 2 pairs, Spring, young were seen. Breeding recorded, Messingham and Scunthorpe. BPBO, 12/5.

120. Water Rail. Records from, Barton-on-Humber (1 pair bred) Killingholme, TBO, Lincoln L.N.E.R. pit, Lincoln S.F., BPBO, Skegness pit, GP, Friskney marsh.

131. Oystercatcher. GP, peak number, 10,000, 7/9. TBO, several pairs bred. Read's Island, 2 pairs during May. Saltfleet, a pair with 2 eggs. Holbeach, 3 pairs bred. *Inland records:* Limber, 22/1. BPBO, 1/3; 8/5; 4, 31/5 and 8/6. Wisbech S.F., 2—4, 26/4—15/7.

133. Lapwing. TBO, 1,500, 1/3. Holbeach, 200 per hour to S.W. and 50 per hour to S. 29/12.

134. Ringed Plover. *Breeding records:* GP, Saltfleet, 1 pair. A pair again bred at the 1963 site in Central Lincs. *Inland passage:* Brigg ponds, 3/5. BPBO, 1/1; up to 3, 1/3—16/6; 23/7—1/11, max. 8, 27/7. Grantham S.F., 2, 1/5; 8, 11/5. Wisbech S.F., 1/3; 3/5; small numbers 26/5 to the of end year, max. 30, Sept.

135. Little Ringed Plover. *Breeding records:* Pairs bred at 3 new sites in the county and 2—3 pairs at a regular site. *Passage records:* BPBO, 1—2, 18/4—20/5; 28/6—25/9 max. 6, 23/7. Burton G.P., 27/5. Hartsholme G.P., 3 during the summer. Lincoln S.F., 3/5. GP, 20/8. Grantham S.F., 18/7; 2, 19/7 and 26/9. Baston G.P., 2, 5/7. Wisbech S.F., 2/5; up to 5, 19/7—12/9.

136. Kentish Plover. Wisbech S.F., 26/5.

139. Grey Plover. *Inland:* BPBO, 1/10. Wisbech S.F., 20/8; 4/10. GP.

140. Golden Plover. TBO, 500, 2/2. Huttoft pit, 300, 4/4. Skellingthorpe airfield, 3,000, 29/11. GP, 500, 12/7. Friskney marsh, 3,000, 27/3. Wisbech S.F., 1,500, 23/11.

143. Turnstone. *Inland:* BPBO, 3—8/8. Grantham S.F., 3, 24/5; 11, 31/5. Wisbech S.F., 4/7; 14/8; 3—6, 15/8—6/9; 1—2, 8/9—3/10.

145. Snipe. *Max:* Grantham S.F., 100, 11/11; 550, 15/11. Wisbech S.F., 120, 24/9.

147. Jack Snipe. Winter records from, TBO, Chapel pits, Burton G.P., BPBO, GP, Grantham S.F.; Wisbech S.F.

148. Woodcock. 'Roding' Twigmoor, Manton, Norton Disney, Panton, Minting, Hartsholme Park. GP.

150. Curlew. Bred, Manton. GP.

151. Whimbrel. *Coastal passage:* Spring, 26/3—14/6. Autumn, 12/7—23/9; GP, max. 500, 27/7. *Inland:* Limber, northerly, nocturnal passage, 21/5. Brocklesby, southwest, nocturnal passage, 13/8. Burton G.P., 3/5. Hartsholme G.P., 15/8. BPBO, 5/5. Grantham S.F., 2, 29/7. Wisbech S.F., singles 6/5—4/10.

154. Black-tailed Godwit. TBO, 10/8. BPBO, 18/9. GP, 8/8; 4/10; 25/10. Grantham S.F., 19/7; 17—19/9. Wisbech S.F., 4/7—30/9; max. 8, 24/9.

155. Bar-tailed Godwit. GP, max. 1,000, 22/11. *Inland.* Wisbech S.F., 9/8; 14/8.

156. Green Sandpiper. Brigg Ponds, 26/3; 6/4; up to 16, 18/7—17/8. TBO, 19/4; 1/5; up to 3, 24/7—24/8. Huttoft pit, 7/8; 2, 11/8. Lincoln S.F., 22/3; Washingborough, 27/12. BPBO, 1/3; 13/4; 17/4; 7/6; 19/6—27/9 max. 10, 1/8. Kirkby-on-Bain, 3/7. GP, 27/3; up to 3, 25/7—28/8. Grantham S.F., 19/1; 15/2; 6, 11/5; 7, 25/6; 29/6—19/7 max. 20, 18/7; 12—13/12. Wisbech S.F., 3, 7/6; small numbers, July to Sept. max. 20, 3/8.

157. Wood Sandpiper. Brigg Ponds, 13/5; 28/5; 6/8. TBO, 22/5. Huttoft pit, 27/5. Biscathorpe G.P., 27/7. BPBO, 2—5/5; singles July; 29/8. Kirkby-on-Bain, 15/5. GP, 18/5; 16/8. Grantham S.F., 2, 29/7; 23/8. Dawesmere, 17/5. Wisbech S.F., up to 3, 9/5—30/5; 1—2 during June; 26/7—20/9 max. 13, 19/8.

162. Spotted Redshank. TBO, 14/6; up to 4, 5/8—29/8. Huttoft pit, 2, 15/8; 23/8. BPBO, 1/6; up to 3, 9/8—14/8 and 8/9—10/9. GP, 3/8—10/10 max. 6, 6/9; 11/11. Grantham S.F., 8/6; 3, 23/8; up to 5 until 11/10; 20, 7/11. Holbeach, 26/4; 5/7; 2, 8/8. Wisbech S.F., 4/7—25/10 max. 30, 27/9.

165. Greenshank. *Spring:* TBO, small numbers, 26/4—20/6. Huttoft pit, 2, 21/4; 14/5; 22/5. Burton G.P., 18/5. BPBO, 17/5; 1/6; 7/6. GP, 2, 2/5. Grantham S.F., 4, 24/5. Holbeach, 3, 26/4; 2, 17/5. Wisbech S.F., up to 3, 8/5—4/6. *Autumn:* records from, TBO, Huttoft pit, BPBO, GP, Grantham S.F.

169. Knot. *Coastal:* max. TBO, 10,000, 1/3. GP, 30,000, 26/8. Boston Point, 6,000, 15/11. Holbeach, 15,000, 8/3 and 27/12.

170. Purple Sandpiper. Cleethorpes, 1/10. GP, 2/1. Boston Point, 26/1; 15/11.

171. Little Stint. TBO, 23—24/8; 27/9. BPBO, 2, 30/5; 1/8—29/10 max. 6, 11/10. GP, 6—7/10. Grantham S.F., 23/8; 4/11—28/11. R. Nene, 3, 23/11. Wisbech S.F., 4—5/6; 1/8—19/12 max. 24 during Oct.

173. Temminck's Stint. Read's Island, 24/5. BPBO, 12—13/5. Wisbech S.F., 8—10/5; 19/9.

174. Baird's Sandpiper. Wisbech S.F., 22/7—6/8/1963. (CBC). First Lincolnshire record (see *British Birds vol.* 58).

175. White-rumped Sandpiper. Wisbech S.F., 24/10—7/11 (CBC). The second Lincolnshire record (see *British Birds, vol.* 58).

176. Pectoral Sandpiper. Grantham S.F., 30/8. Wisbech S.F., 26/7.

178. Dunlin. *Inland:* BPBO, 2/2; 3, 3/3; 22/3; up to 6, 19/4—29/5; 28/6—6/12 max. 20, 30/7. Grantham S.F., 4, 1/5; 16, 11/5; 11/7—6/12 max. 23, 15/11. Wisbech S.F., max 320 during Nov. *Coastal.* max. TBO, 1,000, 9/10. GP, 1,500, 28/3 and 21/10. Holbeach, 1,500, 26/7.

179. Curlew Sandpiper. TBO, 20—21/9; 3, 26/9. BPBO, up to 3, 19/8—18/9. GP, 2, 12/9. Wisbech S.F., 8/7—21/11 max. 22, 28/9.

181. Sanderling. *Inland:* BPBO, 15/5; 21/7. GP.

184. Ruff. *Winter:* 5, 19/1; up to 14, 28/11—26/12. *Spring:* BPBO, singles 2/6—20/6. GP, 4, 8/4; 5, 18/5; 14/6. *Autumn:* Brigg Ponds, 2, 22/8. TBO, up to 4, 9/8—1/9. BPBO, 3/7—11/10 max. 18, 29/8. GP, 9/7—1/11 max. 9, 9/7. Grantham S.F., 29/6—11/10 max. 30, 19/7. Wisbech S.F., July—Oct. max. 100, 16/8.

185. Avocet. TBO, 23/5. GP, 2, 4/4. Holbeach, 26/4.

189. Stone Curlew. Biscathorpe, 27/7.

193. Arctic Skua. TBO, small numbers 12/7—1/10. Huttoft Bank, up to 17, 2/8—17/10. GP, 6/7—8/10 max. 100, 2/8.

194. Great Skua. Huttoft Bank, 3, 19/9. GP, 2—3/8; 1/9; 5/9; 13/9.

195. Pomarine Skua. Huttoft Bank, 8/10. R. Nene, 25/10.

198. Great Black-backed Gull. *Inland:* Branston Fen, 16/2. Lincoln S.F., 16/2. BPBO, small numbers Jan.—April and Nov.—Dec. Sleaford pit, 2, 21/3. Grantham S.F., 19/9. GP.

199. Lesser Black-backed Gull. *Inland:* BPBO, small numbers throughout the year, main passage April—May and July. GP.

201. Common Gull. Tallington G.P., *roost*, 2,000, 8/3. GP.

202. Glaucous Gull. Tallington G.P., 8/3.

203. Iceland Gull. Huttoft Bank, 3/11.

207. Little Gull. Huttoft pit, 2, 7/8; 23/10.

208. Black-headed Gull. *Breeding records:* Laughton, 200 pairs. pyewipe marsh, 200 pairs. Tallington G.P., *roost*, 10,000, 8/3. GP.

209. Sabine's Gull. GP, 19/7.

211. Kittiwake. TBO, small numbers throughout the year. Huttoft Bank, 20, 4/4; autumn max. 50, 2/8. GP, small numbers throughout the year, max. 50, 23/7. *Inland:* Burton G.P., 22/3.

212. Black Tern. TBO, 2, 21/8; 2, 27/8; 26/9. Huttoft Bank, 2/8; 19/9. Huttoft pit, 2, 17/4; 14/8; 2, 24/9. BPBO, 3, 24/5; 1/6; 4/7; 2, 14/7; up to 6, 16/8—27/8; up to 3, 25/9—29/9. Kirkby-on-Bain, 8, 18/5. Skegness pit, 1/5. Grantham S.F., 3, 27/8; 2, 10/9. Hobhole Drain, Boston, 19/8. Wisbech S.F., one summered June—Aug; main passage 19—20/8 max. 8.

213. White-winged Black Tern. TBO, 5/8 (KR) Huttoft pit, 2/8 and 7/8 (EM, DGHW) (see *British Birds*, *Vol.* 58).

217. Common Tern. *Inland breeding:* BPBO, 1 pair. Kirkby-on-Bain, 3 pairs. Tallington, several pairs. GP.

218. Arctic Tern. TBO, 11, 9/8; 10, 28/8. Huttoft, 2, 8/8. BPBO 25/9—1/10. GP, 3, 31/5; autumn max. 70, 3/8.

219. Roseate Tern. GP, 2, 30/5 (DH). 4, 1/9 (LPT). The first records for the county.

222. Little Tern. *Breeding records:* Grainthorpe Haven, 4—5 pairs. Saltfleet, 3 pairs. GP, no count made. *Inland:* BPBO, 4/8.

223. Sandwich Tern. GP, max. 1,000, 4/8.

224. Razorbill. Huttoft Bank, 4, 18/5. GP, dead, 29/3.

226. Little Auk. TBO, 3/11; 3, 5/11.

227. Guillemot. TBO, 18/1; 4, dead 19/1. Huttoft Bank, 11/1; 18/5; 8/11. Chapel Point, 16/9. GP, dead, 19/1 and 3, 29/3.

230. Puffin. TBO, dead, 5/4.

235. Turtle Dove. GP, spring passage, max. 180, 10/5.

—. Collared Dove. *Breeding records:* Cleethorpes, Gainsborough, Greetwell, Skegness, GP, Sleaford (new site), Boston, Spalding, also recorded at Huttoft Bank, Harmston, Ancaster. GP, winter max. 120, 7/11.

241. Barn Owl. Decrease noted over last few years in Limber and Lincoln areas. GP.

248. Long-eared Owl. *Breeding records:* Bred at 4 sites north-Lincs. Also recorded Norton Disney, 8/8. Skegness pit, 20/9. GP, 7, 31/3.

249. Short-eared Owl. No breeding records. Recorded at TBO, Huttoft pit, Cadwell, Binbrook, BPBO, GP, Wrangle marsh, Friskney marsh, Skegness pit, Holbeach.

252. Nightjar. Present during the breeding season at Skellingthorpe Wood, Roughton Moor and Norton Disney: *Passage:* Burgh, 16/9.

256. Alpine Swift. Sturton Park, Baumber, 23/4 (RF, PP). The first record for Lincolnshire. (see *British Birds*, *vol.* 58).

258. Kingfisher. Burton Stather, a pair bred. The only breeding record. Grantham S.F., 15/2.

261. Hoopoe. North Thoresby, 10/5. Bennington, 16/5.

262. Green Woodpecker. Recorded at Brocklesby, Corringham, Limber, Tattershall, BPBO. GP.

264. Lesser Spotted Woodpecker. Recorded from Limber and Corringham.

265. Wryneck. GP, 4—5/9; 8/9.

271. Woodlark. Twigmoor, June.

273. Shorelark. GP, up to 9, Jan; up to 8, 17/10—22/11.

272. Swallow. *Late records:* BPBO, 8/11. GP, 1—2, until 22/11.

277. Sand Martin. Breeding pairs, S. Thoresby, 150. Calceby. 50. Welton-le-Wold, 25. Biscathorpe, 330. West Ashby 50.

278. Golden Oriole. Friskney Decoy, a male, 30/5.

281. Hooded Crow. *Inland:* Scopwick, 15/11. Grantham S.F., 15/11; 6/12. GP.

295. Bearded Tit. BPBO, 20/7; 12, 11/10. GP, 4, 31/10—1/11.

300. Dipper. R. Lud, Louth, wintered.

302. Fieldfare. TBO, one summered, May—Sept. Burton G.P., 30/5 (late record). N. Hykeham, 9/9 (early record). GP.

304. Redwing. Lincoln nocturnal passage, 26/10. GP.

307. Ring Ouzel. TBO, 18—19/4; 25/4; 17/10. Anderby Creek, 3, 3/10. Huttoft Bank, 30/10—8/11. GP, up to 3, 5/4—19/4; 20/9; 4/10; 11/10.

317. Stonechat. Huttoft pit, 3, 23/3; 29/3; Anderby Creek, 15/11. Chapel pits, 2, 10—18/10. BPBO, 7—9/10. GP, 22/3—31/3; up to 3, 18/9—10/10.

318. Whinchat. Limber, 3, 21/8. BPBO, 7/8; 30/8.

320. Redstart. Bred Scawby and Limber. GP, 26/3 (early record). *Autumn passage:* TBO, max. 10, 4/10. GP, a juvenile, 19/7; max. 25, 4/10.

321. Black Redstart. TBO, 5/5. Saltfleetby, 2, 29/3. Lincoln Cathedral, 26/8. BPBO, 5/4; 2/6. Skegness pit, 2, 21/4. GP, 2—3, 21—22/3; singles until 19/4; 4/9; 3—4/10; 21/10.

322. Nightingale. *Coastal:* GP, 2, 19/4. Fishtoft, 6/8.

327. Grasshopper Warbler. *Singing males:* Chapel Point, Burwell Wood, Minting Wood, Newball Wood, Hartsholme Park, Sturton Park, Burton G.P. GP.

334. Marsh Warbler. BPBO, 14—22/6. (see *British Birds, vol.* 58).

343. Blackcap. GP, 21/11 (late record).

344. Barred Warbler. GP, 15—16/8; 4/9.

357. Wood Warbler. GP, 14/5.

365. Firecrest. GP, 29/3.

368. Pied Flycatcher. *Autumn passage:* TBO, 16/8—1/10 max. 12, 2/9. Anderby Creek, 3, 5/9. Huttoft Bank, 1—2, 22—23/8; 4—5/10. GP, 15/8—4/10 max. 50, 4/9. Friskney Decoy, 3—4/10.

376. Tree Pipit. *Coastal passage:* Huttoft Bank, 6, 4/10. GP, 3, 19/4; 17/5; up to 4, 25—28/8; 1—2, 17—19/9.

379. Rock Pipit. *Inland:* BPBO, 3—22/3. Wisbech S.F., 2—3, Oct.—Nov. GP.

380. White Wagtail. Birds showing the characieristics of the nominate race *M. a. alba.* TBO, up to 3, 11/4—1/5. BPBO, 29/4. GP, 22/4.

381. Grey Wagtail. Great Coates, 9/5. BPBO, 6/12. GP, 11/9; 18/9; 6/10.

382. Yellow Wagtail. *Passage:* TBO, max. 10, 10/5; 20, 23/7. Huttoft Bank, max. 20, 1/8. BPBO, max. 12, 11/5; 35, 25/8. BPBO, GP, max. 6, 9/5; 25, 25/8. *Winter record:* 29/11—27/12. A bird showing characteristics of the blue-headed race *M. f. flava,* Huttoft pit, 5/9.

383. Waxwing. Grimsby, 4, 12—16/3; dead, April. Barton-on-Humber, 7, Jan. Scunthorpe, 2, Mar. Keelby, 27—30/3. Louth, up to 4, 3—14/1; 2, 14—17/4. Grantham, 12/1. GP, 1—2, 29/3—7/4; 21/11.

384. Great Grey Shrike. TBO, 4/10. GP, 3—4/10; 16/10. Friskney Decoy, 7—27/11.

388. Red-backed Shrike. Anderby Creek, 5/9; 12/9.

391. Hawfinch. Brocklesby, 2, 13/7. TBO, 19/4.

394. Siskin. Huttoft Bank, 20/9; 4/10; 8/10. BPBO, 1/10. GP, 10, 15/9; 5, 16/9; 2, 17/9.

396. Twite. *Inland:* BPBO, 5/1; 18/1; 27/12.

397. Redpoll. Huttoft Bank, 2, 18/5; 2, 13/9; 4/10. Limber, 2, 6/5. Panton Wood, 30, 23/3. Burton G.P., 10, 1/2; 4, 16/2. Pyewipe marsh, 5, 8/2. Hartsholme, 6, 23/2 and 26/4. BPBO, 26/2; 2, 27/9; 4, 9/10; 11/10; 6/12; 20/12. GP, 3, 29/3; 19/4 2, 28/8; 11/9—25/10 max. 250, 19/9; 29/11; up to 10, 19—28/12.

404. Crossbill. Hartsholme G.P., a pair from 8/2, a female feeding three newly fledged young, 24/4, present until 3/5. This is only the second occasion when breeding has been proved in the county. Sotby Wood, 6, 14/5.

422. Lapland Bunting. TBO, up to 11, Jan; 10/5; 1—2, Oct.—mid-Nov. Huttoft pit, up to 30, 6—31/12. GP, 3, 19/4. Friskney marsh, 1/3, Wisbech S.F., 1/11.

423. Snow Bunting. *Coastal max.:* TBO, 48, 12/12. Huttoft Bank, 35, 3/11. GP, 500, 13/12. *Inland:* Brattleby lowfields, 16/2.

424. House Sparrow. GP, exceptional passage, 27/9—to end of the year max. 600, 27/9 and 9—10/10.

425. Tree Sparrow. GP, 500, 6/10; 300, 9/10.